

SF 487

FIFTH EDITION.

SF 487

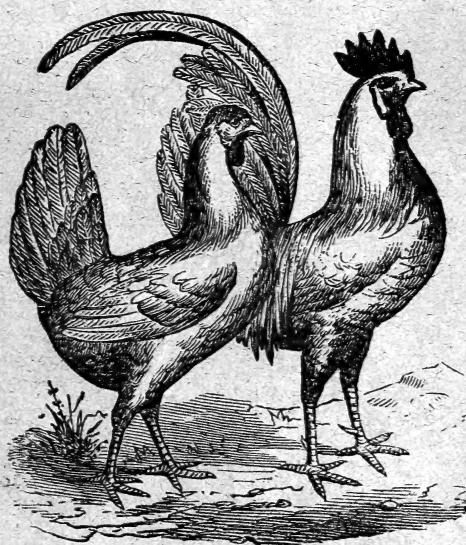
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25 YEARS

— IN THE —

POULTRY YARD



— BY —

A. M. LANG.

COVE DALE FARM,

— ‡ CONCORD, KY. ‡ —

25 YEARS

IN THE

POULTRY YARD,

OR

HOW I SUCCESSFULLY REAR
AND CARE FOR

POULTRY

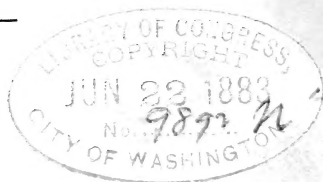
AND COMPEL

HENS TO LAY EGGS.

Fifth Edition.

BY

A. M. LANG,
Cove Dale Farm,
CONCORD, KY.



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A. M. LANG,
CONCORD, KENTUCKY.

SF487.
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TO THE READER.

This book owes its origin to the repeated request of subscribers of the different newspapers that I have corresponded for within the past twenty years. The farmer that accepts the theory that stock perfectly acceptable ten years ago, is not acceptable to-day, is the successful one. The call for better stock, and for information as to what is good stock, and the best modes for rearing it, comes from all sections. A book is wanted which, every one who keeps a dozen fowls, can afford to buy, and at the same time giving all the needed information in plain, short and direct language.

In answer to this demand I offer this little book, all of which is respectfully submitted to the reader.

A. M. LANG,

COVE DALE FARM.

CONCORD, KY., April 1st, 1883.

W. G. H. 8.24/12

Kind Friends:

It is now 25 years since I began the poultry business. At first my idea was to get a lot of hens, put them up, (I then lived in a small village,) feed them well, expecting they would pay a profit in eggs. I bought too many for the room I had, and, by spring, the majority had died of cholera. Then I concluded to raise young chicks for early market. By June but few were left,—“died with the Gapes.” The next fall my flock took the Roup,—lost the entire lot in a week. Looked well at night, and be under the perch, dead, the next morning.

To be successful, these three diseases must be prevented. I could not possibly succeed without some sure plan to keep them in subjection; neither can any person living. You may get your flocks to laying, every thing working smoothly—making money. Let any of the three diseases begin in your flock, and you lose the entire investment—your time, besides being sorely troubled and vexed.

All persons that buy my Recipes can keep any of the three diseases in subjection. If they use care, will not lose one chick, either young or old, out of a hundred, in a year. But there are a great many other things to be looked after—closely, too, if you rear poultry with suc-

cess, and have hens to lay eggs as they should do. I write this book especially for persons that use my recipes. I do not guess at any thing, neither do I copy. I give you facts, just as I have learned them from my own experience and close practical observation.

I claim to be the most successful poultry raiser in the United States, and I will give you the details so minute that you must be successful.

CARE FOR SITTING HENS AND EGGS.

Eggs designed for hatching should be collected as soon as laid, especially so when the weather is cold or windy. They should be kept on soft material, no one resting on another, and handled (carefully) every day. Avoid exposing them to sudden extremes of heat or cold. A moderately damp cellar is the best place to keep them at all seasons of the year. Some say "large end down," others "small end down." The hen leaves them on the side, and she is good authority. They can be transported any distance and hatched, if packed carefully, and not too long on the way,—often across the ocean, or from Cincinnati to San Francisco. Eggs so treated will keep from three to five weeks and hatch. Much depends on the vigor and vitality of the parent stock. Fresh eggs hatch quicker than old ones, and make stronger chickens.

Any of the Asiatic breeds make good mothers. They are naturally very tame, and admit of any amount of handling without getting excited. Games make good mothers, but decidedly cross ones. I prefer a mixture of "Barn Yard," or common fowls for sitters, on account of their being light, and good foragers.

SITTING HENS.

When shall I begin? If you are a fancier, you understand the theory, that early hatches always sell for the most money in the fall. They mature and begin laying earlier, and make a larger growth. If a farmer, as a class, I think we always relish a good "fry." The first thing we need, then, is a hen to sit. The first of January provide plenty of good, warm nests in your hen houses, paste paper over the cracks on the inside of the box, a small shovel full of ashes, then plenty of cut straw. If they scratch the straw out, fill in with old rags. During this month you should feed all they will eat, of mixed seeds, warmed, etc. But if you want a sure thing, feed middlings, mixed with sweet milk, in the morning, (a little pepper in it), wheat and chaff, or mill screenings at noon, all the corn they will eat at night, parched and limed as directed in Hog Cholera recipe. Feed every thing hot. Roast common muscle, or oyster shells, (as you would

coffee), feed all they will eat, pounded up in a clean place. If you use bone meal I should roast it, and mix plenty of it in their milk feed in the morning. Be sure and keep a supply of gravel for them, as their supply is generally cut short now by freezing weather.

On the stone that you mash your shells, break small pieces of common lime-stone rock; if no lime-stone use any kind you have, so it will be the size of small peas. Be sure their water is in clean vessels, and prepared as directed for young chicks in Gape Preventive Recipe. It should be warm.

Of course your house should be as comfortable as possible; and the nests hung so the sun will shine on them. Manage so that but one hen will lay in the nest, if you can. You must provide a *Dust Box*: take a six inch plank; lay one edge off twenty-four inches long, the other twenty-five inches; saw each end to the slope, and nail the short sides to match; it will be wider at the top than bottom. Cover bottom with any light boards, and fill with road dust, (provided in the fall), with a little lime and sulphur mixed in it. If no road dust get dry dirt from under a house or barn; it must be kept in the dry.

Generally your large breeds and common fowls will begin to lay the first little warm spell. They will lay 13 to 15 eggs, and then begin to brood. If you find a hen on her nest, slip a few eggs under her, and see that other

hens do not pull her off, or annoy her. After she has been on two nights, you can move her where you want her, by arranging the nest so she can not leave it only at your will.

SIT THE HEN BY HERSELF.

I always move my own to a hatching house, (formerly a meat or "smoke house"), sixteen feet square—dirt floor; walls are close. In cold weather the nest boxes are placed on shelves, one above the other; in hot weather, generally out doors in nooks and corners on the ground. Those in the house are provided plenty of feed and water, and, generally, left at will after the first three days, but I never let them out of the house. Keep the house dark, only barely enough light to see to eat and drink. This prevents their quarreling and fighting.

A COMMON-SENSE INCUBATOR.

It is now near the first of February. We should provide artificial heat. Some people cheat the hen out of her sit, but I will assist her. Take a box sixteen to twenty inches square, fourteen inches high, throw what will make four inches deep, when pressed down, of fresh stable manure, in it. Take a spade, cut a sod of grass as near two inches thick as

you can, put the grass side up, the out edges being just a little the highest; on top of this place about two inches of cut or pounded straw.

Nine eggs are enough. Never over-estimate the hatching qualities of a hen. In hot weather thirteen eggs are enough. By giving them a reasonable number they will hatch and rear more than to over-crowd them.

Make your arrangements to remove the hen about dark.

Heat an old stove-lid, or large rock and place in the nest so as to have it comfortably warm. Have a few eggs laid in warm water, so they will be warm. After the nest is properly warm, remove the lid or rock; place the eggs in and the hen on the nest, and provide a box or some rig to keep her on a few days.

I have succeeded in getting hens to sit, this way, in January and February, that hardly "clucked" when placed on the nest. If she gets the "fever," she will be down and to business by the second night, at which time I place the eggs under her that she is expected to hatch, previously laid in warm water.

Now she will be faithful to her charge, but will you? You must provide her plenty of feed,—corn is best—drink, gravel and dust-bath handy.

If she has to quit her nest long enough to forage for those things, the eggs will chill, and

if any hatch at all, they will be weak and crying around so as to annoy you.

Sprinkle the hen and eggs with sulphur two or three times during incubation, but not for the last four days. Tack a card over each nest, telling the variety, and when the brood comes off. During incubation the eggs should be wet often, especially if the weather is dry; perhaps three times a week, unless the nest is on the ground.

The object is to rot the shell, so the chick will not spend its vitality in liberating itself. Sprinkle them thoroughly on the day before the brood comes off, and you will have but very few die in the shell. The inside lining of the shell often gets so dry and hard, that the little chick can not liberate itself.

Notice the hen that steals her nest out. She will leave it and seek food in the morning, when the grass is wet, and will go back with feathers dripping with water. Should the nest get fouled in any way, take the hen off carefully, and, if necessary, she may be washed; wash the eggs in blood-warm water; clean the nest or make a new one; replace the eggs and hen, and your "incubator" is running again.

It is useless to try to help the chicks out of the shell—you will kill more than you can save.

As a general thing, it is best not to disturb a hen while hatching. Some hens get

restless and uneasy, keep moving about, on and off the nest, etc. In this case remove the chicks wrapped up in a woolen rag, and place them where they will be warm enough; if they are not kept so they will be continually chirping or "crying."

CARE OF CHICKENS.

If the foregoing instructions are followed, on the twenty-first day you will find a nest full of nice, plump, healthy chicks. Can you keep them so? but very few can, and if you fail here this causes the whole business to be a failure.

Just as soon as the chick can lift its head up in the downy feathers of the hen, it becomes exposed to the lice already hatched on the hen, and, seeking something young and tender to live on. If you allow them to get lousy (examine their heads the first five or six days and you can tell), they are ruined; so to avoid all this trouble apply my "Gape Preventive and Lice Exterminator," as provided for in the recipe—and be sure you do so before the lice can get a hold. If you do not you are almost sure to have gaping chicks. It is best to lift the hen from the nest, clean the nest of shells, etc., then replace the chicks and leave them in the warm nest as long as they will remain contented.

I do not feed until twenty-four hours old,

and prefer them older if contented. They seem to do best not to feed or water until nearly forty-eight. They need brooding or "hovering" now, more than feed. Often a hen will be restless, will not brood them, etc.; first feed all the corn she will eat, give plenty of water to drink, after this, if she continues restless, cover her quarters so as to make them dark.

The weather is cold, but they must leave the nest. Get you a common-sized boot box, remove the sides, leave the end up. Get cheap muslin to go round the box, in place of the board sides; nail a strip three inches wide on the top, tack the muslin to this, and lay a wide board on the top for a cover. Put one inch of dry dirt on the bottom, the hen and chicks in it, and they have a splendid home, if you keep them in a room where they are warm enough. February, 1881, I had 130 in my office twenty-seven days. Once the thermometer was eight degrees below zero, and I never saw chicks do any better. The dirt must be changed every day or two, and carbolic acid, diluted in water, sprinkled over the boxes once a week. One box will afford a hen and nine chicks plenty of room. Twice a day is often enough to warm the room.

WHAT TO FEED.

Let me firmly impress your mind with the

fact, a chicken is not a hog; the more slop you feed a hog the better; but every thing you feed young chicks must be dry as possible. Indian meal, when uncooked, is the worst feed little chicks get, especially so when fed in a soft or sloppy state. It swells and hardens in their crops, and causes irritation, which soon shows itself by drooping wings and general weakness. The best feed, and most convenient to farmers, is dry, light bread, just dampened in sweet milk. The next best is middlings, mixed with equal parts of Indian meal, and mixed with scalding water,—milk would be better.

Feed but little at a time, and at least every hour for the first few days. Do not oblige the chicks to stand out in the cold waiting for something to eat.

The second day you can feed them cracked wheat, which, at this age, is the very best food for them; a few days longer they will eat wheat and chaff, mill screenings, and, finally, cracked corn; any of these are better than meal. They do not waste as much; it will not sour as soon; it can be kept near by them and is ready at all times.

Be sure they get no water to drink, unless prepared as directed in directions for Gape Preventive. Best to raise some small grained corn to feed when small. Reduce the soft feed to twice a day, when they can eat wheat, and to once, when they can eat corn. Feed

mostly the charred corn. If the ground gets warm, let them out to pick young grass, now just starting; but never let them out to be chilled; if you do they will die, and you will never know what was the trouble with your chicks.

Any of the large breeds are good for early broilers; often by middle of February and always by first of March, you can get fifty hatched, if you are careful, so by first of May you have broilers nice enough for a king. If nicely fattened will bring you fifty cents each, in any good city market.

Now what has been detailed here holds good throughout the season in hatching. After the weather gets warm you need not prepare the "Common-sense Incubator," but I always put dirt, and plenty of it, under a sitting hen. If the weather is damp you need not dampen the nest much, but if dry and hot, keep the nest dampened. If your nests are too dry, it requires too much force for the chick to liberate itself from the shell, and is apt to produce deformed chicks. To dampen the egg, is to rot the shell, and have plump, hardy chicks. It is better to have as many come off as near the same time as possible. Less trouble to care for them. If the hen tramps her chicks, keep away from her, do not scare or excite her; such hens are like some women, they are very nervous.

If she plucks or picks her chicks, shut her

up with them in a dark box, until she has time to learn their voices.

Do not set the coop on the cold, damp ground. If early in the season place your coop in the barn shed, and boards under your little chicks to "roost" on. This must be kept dry and warm. If they remain on the cold ground all night, they are likely to be sick the next day. If the weather is cold give them plenty of dry cut straw to roost on. If you use boards scrub once a week with soap suds. If a dry dirt floor, sweep it clean every two days.

Mark this: Never feed young chicks in the box where they roost, or any place where their droppings will commingle with the feed. If this is persisted in, it brings disastrous failure always.

Always see that they are on high ground at night. If it rains you do not want to go out and get wet to move them, and if in low ground they will drown. If rats trouble them, lay an old barrel on its side, let the hen and chicks get in; once in, set the barrel up. This is rat or varmint proof. But be sure you scrub the barrel out.

CATCH THE RATS.

Lay a pile, say twelve to fifteen rails, or old rubbish, about thirty feet from your barn or house; lay straight. Take your cats and

dog, early in the morning. If there, the dog will say so, then move the rails and one or the other gets the rat—my cats generally are the surest. Your common dogs and cats will learn this. Never leave any thing for the rats to eat if possible. Always war against them with all your might. Throw dust lime in every hole you see. If they gnaw your floors, tar the places.

Always manage to have most of your poultry hatch when the grass just begins to grow; it is tender then, and will supply at least one-half their living, and it is so much help toward keeping them thrifty.

The middle of April, in my latitude, is generally the best time. The weather is so changeable before this, that they can not be allowed at large without quite a risk to their health.

After you can control Gapes, Roup and Cholera, wet weather is your greatest drawback. In every thing you do, always look ahead. Be prepared for all emergencies that may arise. You should always have a dry knoll for each coop, high ground, with a board bottom in wet weather. A V shaped coop most farmers use. A few clap-boards on the ground, then set your coop on them, with a little straw over the boards, makes a splendid place for them. You can move the coops occasionally.

Another good plan is this; say you pail a

piece of high, dry ground twenty or fifty feet square; drain all round outside of the fence with a deep ditch, enough shallow drains through it to thoroughly drain the inside. You can place your movable or V coops in it. Either confine your old hens in the coops or let them run out in the lot. Provide means for them all to keep dry. Here you can feed and water always. Build the fence so close that the little chicks can not get out, only as you let them from an opening beside their own coops; this lot should be surrounded by one or more acres of grass. But mark this; if you use a lot like this you must sweep the litter up and pile outside,—better than bone dust for your garden.

In hot weather it is best to sweep every day. Reason: in hot weather all the feed left on the ground begins to ferment and decay; taken into the crops of fowls, in this state, it acts as a poison. Under all circumstances and conditions, never let your chickens out in the wet grass. No poultry, not even ducks, can be allowed to get all drabbed in the grass; the truth is, if you get any of them very wet, they seldom live; if they accidentally get wet and you wish to save them, heat a flannel rag or cloth real hot, lap them up and lay where they will keep warm until dry. I have saved their lives in this way, when found floating in water, gasping for breath. By the way, never leave slop or

water of any kind where they can get drowned in it. Keep every thing of the kind covered.

IN WINDY WEATHER,

always furnish them a wind brake,—a board set up,—something to protect them; even old fowls will hunt such protection; and it chills young a great deal more than the old; as they have nothing but “down,” and that very short at the beginning. Your poultry, if exposed to the wind, are liable to take cramps, rheumatism, or probably to pine away with indigestion.

All poultry should be protected from winds, night and day; so you see your perches should be protected, which you can not do if they are in trees.

PROVIDE FOR COOL WEATHER.

I have heard parents say, when chided about exposing their children to cool, wet weather: “Oh! we are raising them hardy—don’t want any of your weak, sickly children.” Just keep an eye on those that are brought up in this way, and the large majority die before reaching twenty, and but very few live to see forty years.

The same principle is verified with your poultry. To retain health and thrift, they must be kept comfortable; this you can do by

furnishing them with straw, boards, etc., to roost on ; stop the cracks, and, if very cold, throw old sacks, or a piece of carpet over their coop.

Often during March and April, the sun shines warm but the air is so cool that the chicks can not enjoy the

SUNSHINE.

Wealthy people can build houses for them, with a sloping glass side, facing the south ; underneath this the chicks are quite comfortable.

But the large mass of poultry raisers are not wealthy. What can they do? A great deal with a little effort and small expense. A six-inch plank for the front or south side, an eighteen inch one for the back, as long as you wish, say twelve feet. Kentucky farmers have a "tobacco muslin," one yard wide ; the threads are light but strong, and wove very open. Depends upon the width of the muslin for the length of the end piece of the box. If the muslin is one yard wide, the end piece ought to be thirty-three inches long. Nail the narrow board to one end, and the wide one to the other. Slope the ends down from the eighteen inch board to the six inch.

Every three feet nail a plasterer's lath on top. Over the top spread your muslin, tack your sides and ends, drawing it tight.

When done it looks like the top of a hot-bed. Best to fasten together so it can be moved. Whenever you can, the ground being dry enough to crumble, spade up a piece of high and dry ground—some place where the sun shines—then move your box on it; arrange every thing so the slope or low side will be south.

Rake the loose dirt until well pulverized; then sow some wheat over it and rake it in. Provide one or more places in the back—wide board—for them to get in and out—a three inch square sawed out of the bottom answers your purpose. Place the small coop so the young chicks can go from one to the other. To see the little ones use their feet and bills to get the wheat, will pay you for your trouble and expense.

By spading and stirring, it may remain in one place a week or more.

If the weather is wet, cover over with clap-boards or plank, raising the cover twelve inches high, so as to admit light, with a deep trench round outside to keep the inside dry, and you have a nice little *poultry run*, affording your little chicks their natural exercises. And by so doing, you add near one-third to their growth, and wonderfully to their health. You can have one, two feet or twenty feet long, just as you need. You can tack the muslin to a frame one inch thick and three inches wide, made the size of your box;

fit it close and you can remove, rake and sow feed at your will. One twelve feet long will give fifty chicks a good start.

This brings us to first of April. If you have been careless in your application of the Gape Preventive, you are sure to have a few gaping chicks; watch this gaping business closely. If you see or hear any of a flock sneeze, this is your time to cure it. I have experimented with success the past two years by mixing a tablespoonful of the Gape Preventive in a pint of meal and middlings mixed with scalding water; feed all chicks so affected.

Even if you do not see any signs of gapes, it is a good feed for them once a week. Begin the application of the Gape Preventive to all your old poultry first of January, and keep it up every two weeks, until you get entirely clear of lice. If you do not, by April your early chicks will be full of them, and they will not thrive until you get clear of them. Furnish your hens that have broods a dusting place.

Dig up a little loose dirt at different places, south side of buildings, fences, or coops, pulverize, and they will soon rid the vermin from them. Remember, re-dig after a rain, as it packs very hard.

This is near the time that you should sit the bulk of your hens. It is advisable for farmers to get as many as they expect to

raise started at one time, and make it a business to attend to them for a short time.

VIGILANCE

Is the secret of success. On an average, farmers give less attention to poultry than any other stock. Consequence, raising poultry is a failure, which entails a heavy loss in the way of furnishing calico, groceries, etc.

I wish to impress this on your mind : nothing must be neglected, every thing must be done, and well done. You may know how to keep clear of the gapes, but if you fail to use the Gape Preventive, as directed, you will have the gapes in your flock. Even after they take it, which is your own carelessness, you can cure them ; but, if neglected, they die, and you lose the eggs, the feed they have eaten, and your time.

The same principle holds good in roup and cholera, only the loss is so much more when they are grown. It is a shame to see whole flocks die, in a short time, with these diseases, especially so to persons that know they can be cured and prevented.

Your coops and every thing you need should be provided in winter, or at least before you need them. While your flocks are young, they need almost ceaseless care ; your object should be not to lose one of them after they are hatched.

When five weeks' old they are not much trouble, if they have the range of a farm, and hawks do not keep them too close. At this age a feed in the early morning, of middlings and meal mixed with milk, and a feed of all the corn they will eat when going to roost, is all they need. When of this age, if they roost in boxes or barrels, and you are a little careless in keeping them clean, the *Red Lice* will annoy them. Said lice never leave the box, but remain in the joints or cracks by the thousands. If you find them in a coop, get a pile of straw or shavings, set fire to them, and hold the coop in the blaze until the last one is destroyed.

WATERING

You would suppose that even a child could water chickens, but there are few adults who do it as it should be done.

Cleanliness is the main point. The water should be clean and pure. The vessels kept clean at all times. And in cold weather the water should be given to them warm. For young chicks it should be kept in some shallow vessel. Arrange so that they can not get into it.

I prefer to water them in clean vessels, and in one place. If they are allowed to drink when and where they please, it seems they

will be satisfied with the dirtiest, filthiest puddles to be found.

They may devour all the filth of a garbage barrel if in a dry state—it seems to have no visible effect; but let them be round your stables, barns or out-houses, drinking the water from filthy puddles when decomposition is going on, and it is surprising how fast they become diseased, and often how deadly the poison is.

My Cholera Preventive is based on the theory that the germs are mostly taken in their water, conducted through the system by the water, and are more readily destroyed by the same process.

THEIR PERCHES.

It is of the utmost importance to have a suitable place prepared for them to roost in, as soon as they are large enough. I always prefer to get them up off the ground just as soon as I can. Better for their health, and no danger from coons, skunks, etc.

I use sheds built twenty-five feet long, ten feet wide, twelve feet high at front; back eight feet high, pitch roof,—sloping from front to back,—sided up with plank on end, and one inch apart.

Front facing south-east, and sided down to within five feet of the ground; floor raised with earth, and deep ditch round outside.

The perches are two by three inch scantling, eight feet long. All hung level, tarred ropes, about five feet from the floor. See you get them level; if one is a little higher than the other, the entire lot will want to get on the highest pole. You can take two plank half inch thick, fourteen inches wide, and nail together V shaped. Hang one under each pole, sprinkle a little loose dirt and lime over it, also over their droppings, every day or two. Empty this into a barrel kept in the dry, at least once every week. When you want to use it, empty the barrel out in a smooth place, take an old-fashioned flail and pulverize it, and it is far better for any thing you wish to plant than "bone dust" can be made. If you never tried it, you will be surprised at the amount fifty head will yield. If you have but a few you may dispense with the boards, and keep loose, dry dirt, and throw over their droppings every morning, but then you must be sure and clean every thing out and sweep clean once a week in hot weather. If you do not, it will take quite a lot of lice exterminator to get rid of the lice.

Place your perches so they can not reach and pluck one another.

Before the hen weans her brood place a couple of short planks on the tops of your perches, and stand a wide plank up so the little ones can walk up. After she spends a night here she will not trouble you; and when

weaned, they are all just where you want them.

In our climate, generally from April to September the weather is warm and often extremely hot, therefore it is necessary to prepare

A SHADE

In or about your runs. I prefer currant bushes. They may be set in nooks, corners, and out-of-the-way places, not occupying much room, but affording a splendid shade, and a fruit that poultry seem to relish.

Sunflowers are splendid—seed may be planted from March to July. Their wide leaf shade is what you want, and the seeds are one of the best winter feeds we get. You can plant any place, as they are not choice as to soil. It is best, when stalks get about five feet high, to pull the bud out of the top. This causes it to throw out sprangles at every leaf, which gives you more shade, and just as many seed. Grape-vines make a splendid shade.

PLOW YOUR RUNS.

Here is one fruitful cause of different diseases. Poultry are kept and allowed to run on the same ground, in the same place, for years. The land becomes rich and foul with weeds. I know farms that poultry have used fifty years along the same fences and around

the same buildings, and the land has never been stirred.

This will not do, as risk to health is too great. If your inclosure is small, spade some portion of it daily. Keep the litter spaded under or swept off. If on a farm, plow the nooks and corners up in February, and plant in potatoes. This gives you a good crop of potatoes, fresh plowed land for your poultry, when it is most needed, and continues until your potatoes are "laid by," and furnishes a shade when they most need it. Dig the potatoes early. In July or August sow the patch in rye, keep your poultry up till it gets up, and you have the very best winter pasture for them. And you can repeat this from year to year successfully, and have fresh land all the time and good crops.

If your runs are set in bushes use your spading fork, hoe and rake; get it stirred in the spring of the year, and it should be done in the fall.

I prefer to have patches of potatoes and corn close to the yard fence rather than unsightly weeds.

This brings us to June. Sometimes you wish to sit hens in this month; but here is the old adage, "hatches in June not worth a spoon; and in July, not worth a fly."

JUNE HATCHES,

I find, are just as successful as April, if han-

dled right, and I find my best spring and summer layers are always hatched in June.

Those hatched in March and April will lay from September to real cold weather in the winter. Those hatched in June, begin in January, and lay all spring and summer. All that is required is plenty of dirt—a thick sod—under the eggs; and if the weather is dry and hot sprinkle the nest so that it is continually damp; when taken from the nest the chicks must be kept in a cool, dry shade, and furnished with plenty of fresh water as required in Gape Preventive recipe. Extra care is required in feeding. If they get a little too much sloppy feed it ruins them. If it is dry weather they can be allowed to roost any place on the ground. If they must be confined, be sure they have a good shade, plenty of dry feed, and all the sand and gravel they will use. If you have a corn field close to the house, and a shade tree in it, place your movable coop under the tree, and it will surprise you how your June and July chicks will grow. In an orchard is a very good place, but you must not let them out until the morning dew is off.

DURING HOT WEATHER

You must be on the lookout for cholera in your early hatches, particularly if wet or damp.

All filth must be removed and noxious smells abated. Never let a week go by unless you feed the mixture. It is a tonic, and it is a preventive of this dreaded disease. It is now near the moulting season. If your poultry become diseased during the hot weather it retards their moulting,—shedding,—and will cause you loss in the end. Another thing to be looked after from June to October, is the feed they get from the fields. The seeds of a great many weeds are getting hard now, and they greedily eat them up.

The trouble is, the seeds are not *dry*. New wheat, oats, corn—in fact, any new grain—is almost sure to produce diarrhea and in the end cholera of the worst type.

If you follow the instructions given in the recipe, you will have no trouble. You can get your February and March hatches through, and the pullets be laying by the first to the tenth of September, *provided* you have been

FEEDING ALL THEY WILL EAT.

I have known some successful farmers to keep five to six head of horses, feed all they will eat, curry, rub, etc., half of the time; work them—well, it may be once a month. If John or Lucy wants to ride one three or four miles; it is a hard matter to get Pa's consent; he is so afraid they will be abused, etc. Now this man sees *money* ahead in his horses,

but he will walk from the barn to the house and find his better-half feeding the chickens, and will probably say: "I would not feed those chickens so much; I tell you, feed is scarce and high! it does not pay! Well, I declare! feeding them wheat, and it selling at \$1.50 per bushel! I don't see any money ahead in this poultry."

At the same time 100 hens, properly fed and managed, will yield him more clear cash than he can make on any two grown horses, with all his petting and rubbing down, and the cost of the two and their feed is no comparison.

I wish to make this point clear; too many farmers pet one kind of stock and abuse others. You should make this a rule; if you can not feed and care for stock, as it should be done, sell it at once, and avoid getting "stock poor."

Provide pasture and feed, and keep your pigs growing until they enter the slaughter yard. They are healthier, less trouble, and the meat is better. If you have too many to provide for in this way, sell the surplus and provide feed with the proceeds. If you keep poultry, provide every needed accommodation for their thrift and comfort. To make it a success you must do it. No need of expensive quarters.

You must provide a variety of feed, better to raise it; but if you have not that which you

need, do not be afraid to buy it. One dollar spent in this way will generally bring three to five back.

When you feed your poultry, do it liberally. Do not call thirty or forty hens around you, to give them a grain of corn each at night, but throw them all they will eat. A hen is a machine ; if you furnish her the proper feed, and keep her in a comfortable place, she *must* lay eggs. But if any thing is lacking she will not lay.

MOULTING

is a natural process of annual occurrence. A great many of your fowls may not pass the season of moulting safely.

Early hatches generally do, if kept thrifty, but later ones often are exposed to severe tests. The summer moult is usually gradual, but few feathers falling at a time, and these being at once replaced. On the contrary, when the moult happens in autumn, the feathers fall faster, and are not so speedily replaced. The consequence is, when the cold, chilly winds of autumn come, they are almost naked, and must suffer if exposed to the weather.

If you have a poultry house with glass front. put them in it, or you can keep them in a muslin coop, as described for a run in this book.

Moulting always occurs to wild birds, in a state of nature, precisely when their food is most plenty. This implies that they should be fed liberally if confined.

Put wheat in a pan, and dry it out is the best feed I ever found for them at this time. Middlings and meal mixed with sweet milk are equally good. Their allowance of pepper should be doubled now, and continue until flush feathered. Any sweet substance is good for them now.

But your greatest enemy, during this period, is

CHOLERA.

For symptoms and causes of both hog and chicken cholera, read my circular, sent FREE to all.

This most fatal disease has spread over a vast area of the United States. The germs live in the water. They blow from place to place. You may walk in a run where it is, ride fifty miles and enter a run where there is none, and the dirt sticking to your feet will spread the disease to this flock at once.

Freezing does not destroy them, neither does dry weather; damp, warm weather is the time they are most poisonous. From August to November you must be continually on the lookout for cholera. Whenever you find any of their droppings of the dark, slimy, cholera appearance, you must use your preventive

freely, and be sure that every one of them gets their portion. You can use it in their drinking water or mixed in their feed.

The charcoal feed should be used freely for hogs and poultry during the autumn.

Now I have an object in cautioning you thus ; if you let the cholera or roup get a start it affects your whole flock more or less. Those that do not die will not lay—they are half sick all the while. Your March pullets are now old enough to lay.

From September to May, eggs are always a good price and ready sale. So far it has all been expense and no income ; now we want to invert this ; we want a large income on small outlay.

But I hear you say, hold on, old fellow, you might be mistaken ; probably my hens are not of the right breed or stock ! How about this, anyway ? But little difference. A hen is a machine, of course some are of stronger vitality than others ; some just adapted to lay an egg every day at least nine months in the year—the non-setting breeds—others to laying an egg every day for thirteen to fifteen days, then they get feverish and wish to sit. These are called the sitting breeds. Your early pullets of these breeds will not be very hard to break of this fever. The instructions that follow all depend upon your poultry house being comfortable or not. If it is, they will pay you well to provide every thing named

for feed. In fact, they will lay every little warm spell, all fall and winter, if so fed.

TO COMPEL HENS TO LAY EGGS.

Chemically speaking the shell of an egg consists chiefly of carbonate of lime, similar to chalk, with a very small quantity of phosphate of lime and animal mucus.

The white of an egg—albumen—is without taste or smell; composed of eighty parts of water, fifteen and a half parts of albumen, and four and a half parts of mucus, besides giving traces of soda, benzoic acid and sulphureted hydrogen gas. The yolk has an insipid, bland, oily taste. It consists, chemically, of water, oil, albumen, and gelatine.

Now your poultry must have something to form the shell. Oyster shells head the list. Nothing furnishes, so easily and surely, the requisite material for egg-shell as these natural productions of the sea. You can procure them in large towns at your restaurants, as they are glad to give them away.

Mussel-shells found along rivers and large creeks are splendid. I have always used those found on the shore of the Ohio River.

Bones of any kind are a real necessity. It is preferable to get your bones of your butchers, but ground bones are just as good, if they are not chemically destroyed. In their raw state they are good; but by roasting them

until they are brown and brittle, you have almost the genuine egg-shell, and you save the hen an endless amount of grinding. A large stone in your yard, a hammer in your hand, is all the mill you need to grind them. Keep gravel,—if no gravel break stone in small pieces,—with your shells; add good, clean, coarse sand sprinkled over all.

During winter, while they are confined in your houses, a portion of bone and gravel should be broken daily. Scraps of old plastering are good. Keep in a box and stir every day or two.

Albumen—the white of the egg—is found, almost in its pure state, in fresh, sweet milk, and in wheat, oats, rye, buckwheat, barley and corn, in the order as named. Corn furnishes, with the other grain, oil and gelatine.

Understand, while at large they get, of their own accord, plenty of seeds, weeds, etc., that furnish a great portion of the items named. The bone and shells they are not apt to get, and they seldom ever can find albumen enough.

Now this makes plain what we are to feed. It matters not what we have to feed, if our hens lay eggs they must have the wherewith to produce the egg. We are now ready to begin with our

SPRING PULLETS.

We have been feeding dry corn through

the hot weather, and depending on their foraging the balance of their grub from the farm.

If well quartered, as soon as a cool night or two comes, they begin to get fat. If they are in a healthy state, their feathers are glossy, laying smooth and close, their combs enlarge, assume a deep-red color. If their movements are slow and clumsy, they are too fat to lay. If so feed but little corn, and mostly oats, for a week or ten days. Oats are always the best feed in the fall and early spring. They will tone up and set a fat hen to laying faster than anything I ever tried. After your pullets begin, if they have the range of a farm, but little feed is required. A small feed of middlings,—they are rich with albumen,—and meal, mixed with sweet milk—scalding water will answer very well—but the milk answers the purpose of their meat diet, so essential to their continuous laying, and it is the only convenient meat diet at the command of farmers. Their feed should be seasoned with pepper freely. This is something—pepper—that we must always supply them, as we have nothing that fills its place except a kind of wild tongue grass that generally starts in your runs or wherever your poultry uses.

For a few days some of your pullets will only lay every other day. This is generally caused by their not eating enough substance to produce the shell, or a lack of the prop-

erties of albumen in their feed. Put a little lime in their drinking water, or mix a little in warm feed for the shell. Feed more wheat for the albumen.

Now this must be looked after every day. If you fail to furnish the essential they will fail to produce the eggs. This system of feeding lasts until the frost and freezes have destroyed their feed in the fields,

We must now begin to prepare for

WINTER.

In our climate, where we are subject to so many extremes of heat and cold, poultry raising becomes an intricate business. It requires practical experience, energy and promptness of action to make it a success. The amount of cold and exposure they can endure is surprising, but while so exposed they do not lay eggs.

So it is of the utmost importance to provide them just as comfortable quarters or houses as you can.

I find a very good one is to select ground high and well drained, build as large as you want, set facing south-east. I build them plank on end, cracks closely battoned, shingle roof, good ventilators in it, dirt floor, perches as described, and the front or south-east side with plenty of glass windows in it—any old sash will do. If you keep fowls that have

large combs, dig a five-foot cellar under the house, to use in extreme cold weather, then you must have a floor on joists over the cellar. In warm weather keep plenty of dry dirt thrown over the floor. When extreme cold weather comes remove this floor, joist, etc., and lower your perches to within three feet of the bottom of the cellar. Be sure the cellar is drained all round next to the wall, that the middle is the highest, and the floor covered with sand and gravel at least six inches deep. Just as spring comes, remove this gravel floor out of the cellar and replace your upper floor.

If you arrange the cellar so as to have it ventilated with a window to admit sunlight, and keep it clean, you have one of the best hatching rooms that I know of. Keep a dust-box for them to wallow in wherever they are, which must be refilled when needed all through the winter. You should always gather

ROAD DUST

in the fall of the year. Get it any place where you can. The best comes from turnpikes, as it is mixed with sand. Left in old barrels and in the dry, you can use as you need. You must have it; they are not apt to be thrifty without it.

Save your winter feed in the fall. When you thrash your wheat, save all the heavy chaff, keep dry, and throw a little in your runs, or sheds, or in your cellar every day, when confined. This gives employment and exercise, as they will be continually scratching and picking, which is as essential as to have them eat. With the large breeds, in order to get them to take the needed exercise, you may have to scatter their grain feed over the chaff, so they will have to scratch to get it.

Save your broom-corn and cane-seed for them. Buckwheat, millet, or seed of any kind, save and have ready.

Corn, throughout the winter, fed hot, is the principal feed.

Next of importance is the warm soft feed described. Then you want a feed of wheat, oats, etc. A mixture of any seeds you have; the more variety the better. All of your feed should be warmed and fed hot, limed, etc., as described in recipes.

The corn is better if boiled, but it must be boiled dry, not fed watery. In feeding soft feed never throw it down in the dirt and filth. Take a piece of plank one inch thick, twelve to fourteen inches square. Nail strips—plasterers' lath, one and a half inches wide—around it; any piece of board can be made to answer, and save your feed and the health of your fowls.

In extreme cold weather you must use extra

care in providing them gravel and charcoal. Feed regularly and systematically, giving all the variety possible. Hang small sheaves of oats in your houses, just high enough to compel them to jump to get the heads. Bundles of clover hay, or even corn fodder, are better than nothing.

Save plenty of turnips, cabbage, onions, anything green, and feed them in cold weather. One of my principal green feeds, in winter and spring, is small potatoes.

When potatoes are dug, always save every one of them, if not as large as partridge eggs; they are one of the best poultry feeds to be had; they seem to compel hens to lay eggs.

They are brought to the barn when dry, all sorted out. The small ones are placed in the cellar where we can get them any time. Just as soon as the hens begin to miss their green feed I begin to feed them in small quantities, and keep it up all winter and spring. I bought thirty bushel of "refused potatoes," from a friend, that proved to be the cheapest feed I could get for them. I boil them until dry, mash and mix with meal and middlings, and feed warm. Another winter food is butchers' scraps; the waste of the shops can be had very cheap, cooked and fed in small quantities; nothing any better; when you butcher sheep, hogs, etc., save every thing for your poultry.

Cracklings, even if pressed by pork com-

panies, are good and cheap feed. Keep them in a box so they can pluck them all winter. All these feeds are necessary, if your poultry are confined and must be fed occasionally in the winter.

Now if you feed as indicated, and keep the hens comfortable, they *must* lay eggs—they can not help it!

NESTS.

It is of the utmost importance that your poultry have good nests. When you make a nest, and get every thing ready to nail together, make a thin plaster of lime, coal-oil and sulphur, saturate each joint of the box with this before nailing together. Always whitewash your nests in and outside; add a little carbolic acid to the wash. Nests in the house should always be *hung* up. A very good one, for Leghorns, is twelve inches square, seven inches high—the sides—back end in center twelve inches high and sloped to the side and covered with half inch plank, being a small house when complete. The front end rounded out ten inches at the top to within three inches of the bottom, which is nailed on after the square is put together. For the larger breeds they should be in proportion but larger.

MOVABLE COOPS.

Even when I lived in a small town, I always felt the need of a good movable coop. On a

farm I could not do without them. I have experimented a great deal and have settled down on the following as being the best.

The scantling are all one and a half by two inches seasoned poplar. The object is to have it light. For the end pieces, cut the two bottom ones five feet long, the two top ones three feet; cut the corner posts, four of them, twenty-six inches long, halve or notch the bottom pieces two inches from the end, and the top pieces at top. Fasten with strong nails. When done, they are wide at the bottom and narrow at the top. Now take your rails, any length you wish the coop to be—twelve feet long is right for six hens. Fasten one at bottom and top of each one of your ends. You have a frame twelve feet long and five feet wide, on the ground, and only three feet wide at the top; the top rails should be left out three inches for *handles*. The roof may be pitched back, or made so as to require a board two feet four inches long on each side, or it may be made fifteen inches high in center, above the square, a scantling extending from end to end, and lathed the same as the sides. This is the best for turkeys. Cover four feet in length for your perches. The coops can be made any height you desire. Cover with light clap-boards or shingles. Board the end and side up, or tack muslin on the end and sides to protect them while on the perches.

The siding and cover should be light material. Under your cover, twelve inches from the bottom, put a scantling across for a roost ; make you a lath gate or door, hang with leather hinges, in the front end with a latch to keep it fastened. Furnish with a nest, set just inside the door, a drinking vessel of some kind, and you have one of the best and most convenient coops I ever saw.

If you want your chicks raised away from the house, move the coop where you want it ; leave the hen and chicks in it ; feed and water is all the trouble you will have, and it is proof against coons, skunks, etc. Then you can move it to fresh ground every day.

THE DIFFERENT BREEDS.

Strictly speaking, there is no such thing as a pure bred fowl. There are those that have been bred "straight" for many years, and now produce chicks like parents, that by common consent we call pure breed, but they have relatives, and not very far distant, that go by other names. Take our Brahmas and Cochins—Light, Dark, White, Black, Partridge and Buff—are all understood to have come from the old Cochin China, or Shanghai, first imported from China about 1847. For several years they were bred all sorts and colors—any thing for size ; finally "fanciers" began to select and breed for certain colors,

combs, shapes, etc., until we now have seven recognized "pure breeds" from one common parentage, in a little over thirty-five years.

Again, foreign blood is introduced often for a specific purpose. If you mix Black Spanish blood with Black Hamburgs, it gives more size, and otherwise improves it. Of course it takes several years to get the new family "toned down," etc.

By common consent we call a breed pure when it reproduces itself. The greater the number and the truer the reproduction, the more valuable the strain.

ON BREEDING FOWLS.

In all works treating of poultry, which have fallen under my observation, there is a lamentable deficiency in information respecting the important subject of breeding. When the topic is touched upon, amid meager details and questionable principles, there is a loose and indefinite use of terms, which serve only to distract and confuse the inquirer.

Fowl-breeders have never been forward to communicate such information as is derived from their experience; the amateur seldom feels any inducement to do so; and the breeder, whose only object is profit, is well content to preserve his secrets and secure his gain.

The various kinds of breeding are denom-

inated "*in and in*," "*close*," "*mixed*" and "*high breeding*." When we speak of "*in and in*" breeding, the meaning is simply that the breeding is by commerce, between individuals of the same brood; or, between brother and sister. "*Close*" breeding, is by commerce between the parent and *his* offspring. "*Mixed*" breeding is the connection between different breeds or varieties.

Crossing breeds. To insure successful and beneficial crossing of distinct breeds, in order to produce a new and valuable variety, the breeder must have an accurate knowledge of the laws of procreation, and the varied influences of parents upon their offspring.

All the breeds in this country are crosses, produced originally by accident or design. Crossing does not necessarily produce a breed; but it always produces a variety, and that variety becomes a breed only when there is sufficient stamina to make a distinctive race, and continue a progeny with the uniform or leading characteristics of its progenitors.

High breeding. When uniformity of plumage can be effected in different varieties without sacrificing the health and vigor of the race, it is desirable, and, in many instances, it can be accomplished satisfactorily.

Real high breeding consists in the selection of parent stock of the same race, perfect in all the general characteristics, and of re-

mote consanguinity. This should be resorted to yearly to secure the best results.

If a breed is *pure* the progeny resembles the progenitors in almost every respect, in plumage, general outline, form habits, etc. They look identically the same. But when the blood is mixed the plumage will vary widely or slightly, according to circumstances, although the general characteristics may remain the same. The close breeding, to which so many resort, generally results in absolute deterioration of the breed in important respects.

Pigeons seem to require "in and in" breeding. The female lays two eggs, from these two eggs a male and female is produced. They again breed "in and in," and so continue for hundreds of years without visible deterioration. They seem to be perfect of their kind, or pure breed, never varying except in crossing, and never degenerating except by confinement.

The rule seems to be with the feathered tribe, "*close*" breeding, and occasionally "in and in." This seems to be the laws of nature, as with the wild turkey. In their natural state they resort to "close" and "in and in" breeding; still the race does not change in appearance or degenerate. The reason is the breed is pure. You may compare tens, hundreds or thousands of these noble birds of the forest, you can not discover the least

dissimilarity—all look alike—they always have and always will. These are changed or deteriorated *only* by crossing or confinement.

The majority of our breeds degenerate rapidly upon breeding “close” or “in and in,” from the fact that they are not perfect of their kind, that is, our breeds yet show their mixed blood and the breed degenerates in proportion as the blood is mixed. So all this “close” and “in and in” breeding should be avoided as much as possible by changing your cocks each spring from one strain to another.

These remarks are equally applicable to quadrupeds. If the breed is pure, as with the rabbit, you can breed “close” or “in and in,” with impunity, and nature seems to favor the process; they uniformly resort to that manner of breeding and the race remains precisely the same through all generations, unless they are crossed or confined; but if the animals are of mixed blood, as is the case with cattle, horses, etc., such breeding must be carefully avoided or the race soon runs out—first degenerating in size, then producing cripples, and deformed offspring, and then terminating in impotency and sterility.

PRESERVING PURE BREEDS.

If you have pure stock and wish to keep it so, they must be separated and kept so; not allowed to marry or intermarry with other

stock. If your White Leghorn cock gets out and marries a Brown Leghorn pullet they are both "mixed," which is apt to show occasionally for the next ten to thirteen days.

I have been frequently asked, "when should the different breeds be separated, in order to preserve the breed pure?" Pullets that I breed from are always kept away from the cocks until the eggs are needed. For amateur breeders and farmers, the first of January is early enough.

I see there is quite a difference of opinion, even with fanciers on this subject. I know several that claim two days to be long enough. My tests for years prove to me this: the second egg may be pure, the fifth or thirteenth may be mixed. The mixed eggs will show as late as the thirteenth egg after the mixing. This has happened over and over with me.

When a valuable breed is produced by accident or design, it should be preserved, and the subsequent breeding should continue from that stock; if otherwise there is no certainty of the purity of the blood of the new breed, for it does not follow that a different parentage, though of the same name or original breed precisely, will produce the same new breed, or any thing resembling it. In order to produce pure breeds the breeding must continue from the original stock, carefully avoiding "close" and "in and in" breeding. Therefore the breeding must continue from the original

stock obtained by accident. Such breeding produces the leading characteristics of the different breeds with great uniformity, and the genuineness of the breed can not be doubted.

In order to produce a good cross the parentage should be healthy, and from healthy races, not dissimilar in general make up. The main points are: Are the fowls large, fine-fleshed, gentle and domestic in their habits, good layers, of rich and well-flavored eggs, close sitters, careful nurses, etc., and symmetrical conformation and gaudy plumage, are general accompaniments to the foregoing essential prerequisites. The size of the leg should always be looked to, to judge accurately as to purity of blood. If the leg is large for the breed, you can rely upon the purity of the blood, the fineness of the flesh; but if the legs are smaller than most others of the same breed, rely upon it the fowl is of deteriorated blood. The very best fowls of any breed should always be selected for crossing or general breeding, otherwise the breed will degenerate.

The quality—that is the finest, juiciest and richest of flavor—of domestic fowls, is of much more importance than their size, and I reject all coarse-meated fowls, however large they may be. It is not difficult to discriminate between coarse and fine fowls. When chickens, if the down is straight and stands out, the body and limbs loosely jointed, the

meat is coarse; but if the down is glossy, lying close to the body, the body and limbs compactly formed, the meat is fine, and, when grown, if the fowl is light in weight in proportion to its size, the flesh will be coarse; if heavy the flesh will be fine. If the meat is fine, the bones are fine and so are the feathers. The color of the legs, too, is quite an item in judging the quality of fowls. Other things being equal, the clearest and deepest colored legs, for the variety, are the best; generally dark-legged fowls have the finest flesh, and are the most hardy. Turkeys, which have the finest flesh of any fowl of their size, have black legs; pheasants, partridges and quails, all of which are very fine fleshed fowls, have dark legs. I do not wish to be understood to say that all dark-legged fowls are fine, or that all yellow or white-legged ones are coarse; but I do say that the deepest or most solid color which pertains to the breed, indicates the finest fowl. The color of the feathers, too, has more or less to do with the quality of the fowl. Some breeds have much more brilliant plumage than others, but when I speak of the brilliancy of the plumage, I mean in comparison with others of the same breed. If you select a fowl of rich and glossy plumage, its legs will be a deep color, as compared with others of the same breed, and its quality will excel.

If the object in view is to breed a single

variety to perfection, the first requisite is to procure fowls of pure blood and possessing all the characteristics of their breed. Your time and labor are lost unless a pure specimen of his variety is selected for whatever imperfection exists is likely to be perpetuated in the progeny. You must look to plumage, size and form, in making selection either of cock or pullet, and those are preferable which are hatched earliest in the year. The age of the fowls is a matter of considerable importance, and though it is true that a pullet will lay the greatest number of eggs in her first year, yet experimental tests demonstrate, that the chickens hatched from the second year's eggs are more vigorous and hardy. The above rule applies to cocks as well as hens.

An error is often committed by giving too many hens to one cock, which results in weakly and otherwise deteriorated progeny. Not over six hens should ever be allowed in one harem. If the quality of the breed is a matter of interest, three would be the better number.

In breeding time great cleanliness should be observed in the lodging of fowls. In all my varied experience I never saw or tried a better plan than the "movable coops," described on page 40. Just place them on a nice grassy plot, and you can have your breeding stock on fresh ground every day and they

will be clean and nice. I find the non-sitting breeds lay every day; that the sitting breeds do a great deal better, as changing their locality seems to check the incubation fever.

Their food during breeding time should be a variety and nutritious, but be sure they have plenty of animal and green food. You must arrange so as to have no intermixture of different breeds. A ceaseless vigilance in this respect is the price of success. If you do this you may rest in perfect security that your anticipations will be fully realized.

To preserve the purity of any breed so that "like will produce like," in appearance and properties, is of the highest importance—is, in fact, the aim of the scientific breeder.

EVERY FARMER SHOULD KEEP PURE BREEDS AND
BECOME BREEDERS.

The first of January place in a separate room a cock and two or three of your best White Leghorn hens; in another the same of Plymouth Rocks. Furnish plenty of every thing needed for feed, etc. By first of February their eggs, if kept strictly separate, are pure. As soon as the weather is warm enough you can place them in a movable coop on a grassy lawn, and by covering the sides with cheap muslin, they can generally remain out after first of March. Save the eggs and sit no others. In this way you can have plenty of pure breeds, just as good as any fancier,—in

fact better, as your stock have unlimited range. You can enlarge this plan to accommodate all you wish to care for.

TO MECHANICS.

I was raised and lived on a farm until I was twenty-two years old. I then lived in a small village twenty-six years, a shoemaker by trade. I fenced off a lot one hundred feet long and thirty feet wide. On this lot I had a stable fourteen by sixteen feet, a shed back of it fourteen by twelve feet; a poultry house eleven by twelve feet; the lot paled in with pailing twelve feet high. I always kept a good cow and fed her well; she paid for her feed—by selling milk—and kept our family in plenty of the best of butter and all the milk we wished for our own use.

After I learned how to keep clear of gapes, roup and cholera, I bought a White Leghorn cock and four hens, that cost me a trifle over \$45 when they began laying. As long as I lived there I bred these Leghorns, and kept a strict account of every cent I paid for feed and all I received for eggs. We always used all the eggs and eat all the chickens we wanted for our own use, for which we allow nothing, and still these same Leghorns cleared of all expenses, over \$100 per annum. Several winters I kept fifty hens, and they laid eggs right along, which were often sold at forty cents per doz. Then I made money by

advertising and *selling* not *giving* away. It was a pleasant time to take care of them, affording me recreation, giving needed exercise. I had a hobby,—and but few succeed without one—and it was a pleasure.

By just a little *effort* and a *good share* of *perseverence*, many a mechanic can do just as well and not miss the time.

LAYING.

It seems a providential arrangement, in behalf of man, that domestic poultry are endowed with so great fecundity. The ordinary productiveness of a single hen is astonishing. Frequent instances have occurred of hens laying three hundred and twenty-five eggs annually, while two hundred is the average number, on an average amount of feed. I find no difficulty in getting the non-sitting breeds to average three hundred eggs annually, fed and cared for as herein described. I always breed from my best every-day layers of the sitting breeds. I find this makes quite a difference in the yield of eggs.

Undoubtedly much depends on surrounding circumstances as to the laying qualities of hens. Climate has a great influence; also their lodging, food and care bestowed on them.

There seems to be naturally two periods of the year in which fowls lay, early in the spring and in summer; and this fact would

seem to indicate that if they were left to themselves, like wild birds, they would bring forth two broods in a year. But under our system of feeding and breeding, we have changed all this. We now have them to lay daily, until molting causes them to cease. This process begins in August, and continues one, two and sometimes three months. It is the constitutional effect, which attends the beginning, continuance and consequences of this period, which prevents their laying. Until its very close, when the entire coat of new feathers replaces the old ones, the wasting of the nutritive juices, which are yielded by the blood for the express purpose of promoting this growth, is a great drain upon their system. This makes it plain why the constitutional forces which would otherwise assist in forming the egg, are rendered inoperative. The older a hen is the later in the season she always moults. As pullets do not moult the first year, they begin laying about the time your hens quit; so they are your main dependence for eggs from middle of August to middle of January. (Pullets referred to here must be hatched in February or March, and well fed and housed.) From January on your two-year old hens and later pullets will be laying.

I repeat here that "what you feed," is the main point in getting them to lay. In *winter* you *must* supply animal food in abundance,

and all the material they require for formation of the shell. In *spring*, if at large, they will find a portion of such food, but still they will not get enough of shell material—they require a large amount of both varieties of feed. During spring, keep them on dry ground, and not exposed to the wind. Have every thing well drained, so they will not be drinking out of every little filthy puddle of water.

SUMMER LAYING.—My late hatches (August and September) are my best summer layers; if at large, require but little feed, but if confined their supply of animal and albumen must not be neglected. See that they are provided a good shade and plenty of cool water. They generally lay until the first of September; before this your spring pullets are laying. So this system provides you eggs during the whole year. Sometimes your hens are too fat to lay, feeding oats remedies this. Often you may feed wheat, oats, corn, charcoal and every thing you can command, and get no eggs. Either Roup or Cholera is your trouble now. For years and years I could not account for this, I could see no visible sign of either disease, but I could not feed so as to compel them to lay. After I began using my Cholera and Iron tonic, all this ceased. I never have had such a thing happen since I discovered its use. Nature seems to resist a certain amount of the germs of the disease, but in doing so,

it requires the full energies of the fowl; so the accumulation of fat, muscular power, and egg production ceases until the system is relieved of the disease.

Often it is three or four weeks after the production of eggs ceases before you have an outbreak of cholera or roup, but as a general thing it is sure to come.

EGGS FOR SITTING.—In selecting eggs for this purpose, choose such as you have reason to know have been rendered productive. Those of medium size—*i. e.*, the average size that the hen lays—are most apt to prove productive. Stephanus tells us “that he always found the round egg to contain the female chick, and that of the oblong and sharp end, the male. If you examine the egg between your eye and a candle (we should say now in an egg-tester) you will be able to discern the position of the little air-bag at the blunt end of the shell. If this be in the exact center, the egg will produce a cock, if just a little to one side a hen.” So you see from the Roman period to the present time the mind of man has searched for some sign to tell the sex of eggs. So far as my knowledge goes, I think the Romans could *guess* at it just as well as we can. You may form a very fair idea of your eggs from their specific gravity. Put them into a bowl of tepid water, and reject all that do not readily sink to the bottom.

UNFRUITFUL EGGS—May be found about the twelfth day of incubation. For this purpose hold the egg between your hands in the sunshine; if the shadow which it forms waver, keep the egg, as the wavering of the shadow is occasioned by the motion of the chick within; if it remains stationary, throw it away and relieve the hen of its care. If your eggs have been fresh laid the chicks will be developed earlier than otherwise; if they have been fresh you will, about the sixteenth day, if you apply your ear to the egg, hear a piping noise within; if the eggs have been stale, this will not be perceptible until about the eighteenth day; and, at this time, the yolk which had previously lain outside and around the chicken, will now be gradually entering into the body of the bird. This serves as nourishment to the little prisoner until his subsequent efforts shall have set him free.

PAIRING.

We are not sufficiently acquainted with the habits of the common fowl in a wild state to know whether the cocks always associate with the hens or only occasionally. Hens will lay some eggs without pairing, (they will not hatch) but this is not natural, so the number will be small, and the laying uncertain, hence it is indispensable to have them paired.

I will advance a few ideas on this subject, applicable to all breeds. The cock should be of a large and well-shaped body, long from the head to the rump, thick in girth; his neck long and nicely bending, body straight and erect; his comb, wattles and throat should be large, comb a deep scarlet red; his eyes round and piercing, answering the color of of his plume; his bill should be crooked, sharp, strongly set on his head, color suiting his breed; neck feathers should be very long, bright and shining, covering from his head to his shoulders, his legs straight and large (for his breed); his claws short, strong and wrinkled; and his tail long, covering his body very closely.

All authorities agree that a cock is in his prime at two years old, though I have had white and brown Leghorns of four months so precocious as to show every mark of full vigor, while others of the same brood did not appear in this state for many months afterwards. At three years old, generally a cock begins to lose the sprightly gait and bright color which distinguished him at two. The length of his feathers increases, and his hackles become of too loose a texture, and dangle over his throat.

As soon as you perceive the marks of declining vigor, dispense with his services, and select his successor from your supernumerary cocks that you have reared for this special

purpose. In making choice between two cocks which appear equally fine and vigorous, try them by making them fight together, and select the conqueror; hens, like other females, always prefer the male who shows most courage and spirit. It must be understood always that the cock you breed from must be in *perfect health*. Next to health and strength age is to be duly considered. Neither select one too old or young; from one and a half to three years old. It is better for the fancier "to be sure than sorry." Steer equally clear of premature and often deceptive developments, and of incipient and decrepitude; avoid all extremes.

CHOICE OF A HEN.

The selection of a good hen is a matter of even more consequence than that of the cock for her companion. As each of the different breeds have their own particular markings, it is difficult to give general instructions. For the breed, select a medium sized hen, a brilliant eye, wide tail, large and not too long legs, trim in shape, an industrious forager, and the very best layer.

POULTRY HOUSES.

In order to make poultry profitable, it is indispensable that they should be properly

housed, and that such conveniencies should be provided as will secure their comfort and health. Every collection of poultry requires some place to be provided for them to secure these advantages. When left to themselves, and roaming over a farm, they become a burden to themselves, unprofitable to their owner, and, if in close proximity, a nuisance to the neighborhood. A certain degree of confinement is necessary for fowls. Close confinement (unless in movable coops) will in a degree prevent them laying, and in the end destroy their health. A good sized yard, or run, connected with a place for shelter and roosting, is what is required.

Care should be taken in selecting a situation for these accommodations. It should be high and rolling; above anything, have it so it can be well and thoroughly drained. A south-easterly exposure is the best, and a building of brick or stone is preferable to one of wood. The extent of the ground and buildings to be proportioned to the number of fowls kept, and if any error is to be tolerated it is best to have it on the side of small buildings.

If you follow instructions given in my recipes, you need have no fear of these infectious diseases, (remember that cholera and roup are both "infectious diseases") even if your buildings are small; and laying in winter is rather promoted than otherwise, when fowls

are thus situated. A medium course should be pursued, as the wisest and most economical. If poultry are not defended from the cold of winter they become torpid; exposed to intense heat in summer they become enfeebled. To avoid the numerous diseases which are induced by dampness, care should be taken that the poultry-house should be in a dry location, and properly defended from rain and storms. A due regard to *ventilation* is indispensable to guard against an infected atmosphere, and suitable facilities afforded for their necessary exercise which all kinds of poultry daily demand. You should provide a place for dry sand, ashes, loose dirt, etc., so they may enjoy the liberty of rolling themselves, in order to free themselves from vermin, and for their amusement.

The house, as already stated, is preferable if built of brick or stone; but whatever the material, it is of the first importance that it should be so constructed as to exclude lice and vermin of all kinds.

In the erection of a poultry-house, of course consideration of fancy or economy will furnish the rule, in deciding on a plan. A really good one can be built for a very small amount of money; but there are a great many in existence which excel in expense many dwellings considered comfortable, and even elegant inhabited by mankind.

As cheap a house, and suitable for fifty

head, as I know of is built as follows; sixteen feet long and ten feet wide, back six feet high, front ten feet high; roof pitched from front to back; side the back and ends up with one-inch plank; nail a twelve-inch plank just under the front eave, another one thirty-four inches below it, cover the space with thin muslin, securely tacked on, and painted on both sides with *linseed oil* (this is almost as good as glass), board the remainder of the front up with plank; strip or batton the cracks. Thoroughly whitewash, prepared as directed. Roof with plank or shingles; place your perches three feet high, eighteen inches apart, at the back side; fill the inside up twelve inches with dry, loose dirt for a floor; just in front of your first perch fasten a twelve-inch plank on its edge, so as to keep the droppings to the back part of the floor; every morning sweep the front and sprinkle the litter over their droppings, and always shovel and sweep the entire floor clean once a week. Several times a year haul a wagon load of dry dirt and throw inside. Your sweepings alone are worth all it costs you to keep it up.

Two feet from the house, all around it, dig a trench a foot deep. In winter, or cold, windy weather, set corn fodder closely all around it, as deeply as you see fit; the roof may be covered with it. You can use straw or hay instead of the fodder.

Hang nests all over the front of your house, which should face the south-east. A lot enclosed, twenty-five feet square, will do; an acre is better. Set the lot out in damson plum-trees, eight feet each way. The fifty hens will give you a profit of \$50.00, and in five years your plum trees \$2.00 each. (I mean for my latitude, of course, as said plums only do well from forty to forty-three degrees.)

FATTENING FOWLS.

It is truly a prime requisite in fowls brought to the table that they should be suitably fat, as the lean bird is neglected in the market, and refused by the epicure.

Unless some attention is paid by parties interested to making their poultry fat, it will be found that they will be rarely fitted for the purpose for which they are designed. The great desideratum seems to be to produce fowls which shall be healthy and likewise fat. Over-feeding is a sure cause of disease, and similar effects follow when they are too long or too closely confined.

For an average farmer, "who delights to have the fat of the land to live on," I know of no easier, surer, or healthier plan than to confine five or six head in a movable coop, and feed corn soaked in skim milk, a little wheat, plenty of meat scraps, or clean grease of some kind; once a day a mixture of soft

feed of meal, middlings, mashed potatoes, and all the *charcoal* that can be mixed with it, so they will eat it at all. Give them no gravel unless they have been kept up some ten days. To keep them healthy give them a small allowance of the cholera and iron tonic daily.

Move the coop daily, so they will be on fresh ground. In five days some of the lot will be nicely fatted, you can use them as needed, but in about fifteen days they will begin to lose flesh again. There are a great many methods resorted to by parties fattening and marketing them in large cities. The principal ingredients are stale grease and meat of some kind,—something that we would prefer not to think about if eating chickens at a city hotel. If you allow your poultry to use about your stables, cow sheds, hog pens, etc., and kill and eat them without fattening, are they any better than your city friends get?

Fattening fowls should be kept quiet, and have as little exercise as possible, to keep them in health; any more than this calls for expenditure of food, which does not avail anything in the fattening process. You can not get them fat, no difference what you feed, if they are uneasy and discontented. It is of the utmost importance to feed regularly (three times a day), and that there should be nothing to disturb them, or excite fear or discontent.

The tenderest bird, and most difficult to raise is the turkey. Strange the difference in the vitality of the young and old. A little dew or a few drops of rain applied externally, or a little uncooked food internally, generally kills the young. When old it will go half-starved, and roost on the top of a barn, or in an old apple-tree all winter, and seem to glory in it.

When I was a boy, wild turkeys were so plenty that we made no effort to raise tame ones. As late as 1848, I could take my rifle and kill one any day. It was no trouble to get within "easy range." I have found their nests, and taken the eggs and hatched their young—and by keeping their wings cropped (sometimes their toe-nails cut off) I have domesticated them. It takes three years, or generations, to get them so you can count on them. In the fall they always will wander and seem to want to range in droves, but by driving home a few times and feeding well, they soon quit.

I have found many a nest full of young ones, have spent many an hour looking and hunting for them. You hear their peculiar whistle all around you, but you have very keen eyes if you see one while the mother hen is within hearing, cautioning them with her peculiar language, "quit! quit!"

As tender as the young seem to be, a wild turkey-hen generally succeeds in rearing her

twelve and often fifteen young. After they are as large as a brown Leghorn hen, and before "droving" in the fall, you seldom see a hen but she has her drove, over ten in number. Their success and our failure is in brooding. I knew one to hatch in an old tree-top. I passed and repassed her three times a day for over four weeks, and I never missed her from her nest. When not in sight, I could hear their "whispering whistle." It surely was a good half-mile to water, and how they kept from perishing seemed strange, but I suppose they lived on the dew they could sip from the leaves. Their feed must have been slim. She used round on our farm, and when September came she had thirteen nice plump turkeys.

If 'coons, foxes, skunks, etc., do not trouble you, if a hen steals her nest, sits and hatches, and you let her alone, giving no feed, etc., she generally is successful. But here lies the trouble—the habits of the wild turkey are "tamed down" so that the mother hen feels no disposition to compel the young to remain under her wings; they soon leave the nest, and the old one follows suit, and so good brooding is neglected.

It requires a good motherly woman to raise turkeys, one who is willing to cook for, and nurse them. There is more general failure in raising them than any other poultry, so I

shall give you in detail my plan which has proved successful for years.

LAYING.

About the first of March your turkeys begin to liven up, the old tom to spread his tail and make love to his biddies. If the weather is warm, early in the morning you will hear the hens giving out their peculiar "cluck." This means she is going to her nest, or to hunt a place for one. If you have placed a barrel near by, provided with a nest, an egg in it, you may coax them to lay here.

I have known them fastened on such nests until they lay one egg, then you will have no trouble, but you must keep an egg of some kind in the nest. If you have a barn shed, or outbuilding, fasten them up here every morning until you know each one has layed—the nest should be prepared beforehand.

After they lay the first egg in the nest you will have no trouble until she lays her fifteen eggs if young. Older hens sometimes lay twenty before wanting to sit. Sometimes they are too fat to lay early, if so, feed oats instead of corn. By feeding a tablespoonful of wheat daily, they will lay their third laying, at which time they should be allowed to sit.

The first layings may be sit under common hens, in nests similar to those prepared for chickens. But the shells are thick, and if

the eggs get the least chill, or are not damp enough, your turkeys will be weakly to start on.

If the turkey hen has to be moved, select a suitable place and prepare her a good large nest on the ground. You can build a rail pen around it, or place the covered part of one of the "movable coops" over it, give her a dust box, plenty of corn and water; be sure the eggs are damp enough. On the thirty-first day after sitting, the turkeys leave the shell. Here is the first trouble; a great many turkey hens abandon the nest just as soon as they see the first chick; to avoid this slip the young out and place them in a soft woolen rag, where they will be comfortable, which you will know by their remaining quiet. Something wrong if they keep chattering.

Lice kills two-thirds of the entire number hatched in the United States within the first fifteen days. You must apply the Lice Exterminator promptly, if you do they will give you no trouble; if you do not, and they have any, they are sure to die in the end. When they have lice they will feel light, are weak and feeble, finally die without a struggle. They are more apt to be lousy with chicken than turkey hens.

I prefer they remain without eating some twenty to twenty-four hours. If you can, clean the litter out of the nest; give fresh pounded or cut straw, and leave them on the nest as long

as possible. The idea is, they are very weak and easily chilled. If exposed now they are ruined. You can leave an egg in the nest, lap the little ones up in the day-time, keep them where they will be warm. At night return them to the warm nest. This gives them a good start. The first thing I feed is a grain of black pepper to each. They were originally natives of hot countries and the need of these hot spices, seems never to have left them. Then middlings and sifted meal, dry—you might say only dampened with sweet not tainted, milk, adding a little clean sand, gravel and a small piece of pounded charcoal, all mixed together. After the first day I never feed soft feed to them unless there is pepper and charcoal in it. Then, if your feed is sloppy it will kill them in the end. I never could succeed with them by feeding corn meal alone, especially if uncooked; it seems to be a poison to them. Eggs boiled hard and seasoned with pepper are the best feed while young and weak, especially if you have to feed them by hand. Onions chopped fine are good. Indian meal, one-third; middlings, two-thirds; baked dry and soaked in milk is the best general feed I know of.

The properties of albumen in their feed is what you want, middlings, coarse flour and milk contain the most. But you must not feed this to excess. An occasional feed of corn-bread, if sweet—never feed stale bread—

cracked wheat and cheat from the mill, all make a variety. I find it a good plan to have three or four tame chicks with them when you first feed.

The chicks begin to pick, the turkeys begin to learn how to eat. The turkey hen seems to have no care or thought of the little ones. She eats every thing herself, but makes no effort to learn her young. Watch close if any do not eat, feed them by hand until they learn. Water twice a day. To one gallon of water add a tablespoonful of lime; give no other water.

Always keep a box of fresh sand and small gravel—pounded stone will do, for them, so they can eat when they wish. Anything that decays fast, or in a state of decay, ruins young turkeys. They are more sensitive to such food than any other fowl, hence the general failure.

Now you must avoid over-feed; several times a day, for the first few days, is enough, then diminish to three times a day and no more.

After feed your next trouble is damp or rainy weather. While young they *must* have dry quarters. If they are on the damp cold ground, or get wet, better kill them and save your time. So have a shed, or dry ground for them some place. Never let them out in wet, damp grass; I use the movable coop; place on high ground, away from the house, clear out of hearing. When left to themselves

they seem to do better. They must be handled in this way until they "shoot the red" or the time when the head and neck acquire the reddish color of the adult.

As soon as they can swallow it, feed an occasional feed of pop-corn, and so on until their principal living will be corn. If you want heavy weights turn them out now with the mother hen, feed all the corn they will eat at night, some in the morning. They are apt to come home to roost if you do.

THE GOOSE.

Where people have a right in common, and live in the vicinity of creeks, the breeding and rearing of geese will prove profitable, as they can be kept at small expense.

They are hardy and live to be "old." An old author says, "If well kept and fed as much as they need, they will lay at least 100 eggs yearly."

They are easily hatched, nests on the ground; large hens answer very well to hatch them; the last ten days it is best to put the eggs in warm water and then back in the nest. This rots the shell and they are stronger. The first week or two keep warm and dry, and feed middlings and meal, mixed with milk. Feed sparingly the first week, then increase gradually until they can pluck grass. They seem to require a small portion of salt in

their food to keep their feathers in good trim.

Early goslings can be picked when their feathers are "ripe" and then grow out full in time for fattening for the holiday market. If well fed the yield of feathers will be one quarter of a pound from each one. This pays the expense of rearing them.

THE DUCK.

The duck should always find a place in the poultry yard. The general impression is you can not succeed with them, unless you live on a large creek or river. But I find it decidedly easier to raise them where they can not get to a large body of water. And they seem to do fully as well in every other respect. I have a small pond, supplied from a distant spring, which is all the water they can get. But of a morning you will find them hunting for slugs and bugs all over the clover and potato patches. They come nearer foraging their own living than any of my poultry. I count them at the head of the list for profit. If hatched early they can be "picked" three times and then fattened and sold during Lent.

The eggs are no trouble to hatch, requiring no turning, etc. Thirty-one days in hatching. They should not be allowed in very much water until well feathered. At first their feed should be meal and middlings, if mixed with

milk all the better ; potatoes and mill screenings, finally small grained corn.

They soon become good scavengers, eat any thing. For nice feathers feed a teaspoonful of ground flax seed, mixed in soft feed, once a week ; all the corn they can eat at night.

DISEASES OF POULTRY.

Poultry, like other animals, are liable to numerous diseases, some of them malignant, and many of them fatal. In our climate, however, the number of important disorders is small, and they usually yield to judicious treatment. That very little attention has been bestowed on this subject arises, no doubt, from the fact that the value of an individual fowl is comparatively insignificant ; and while diseases of other domesticated animals generally claim prompt and efficient care, the unhappy inhabitants of the poultry-yard are too often relieved of their sufferings by "chopping their heads off."

But there are reasons which will justify a more careful regard to this matter, besides the humanity of adding to the comfort of these useful creatures ; and the attempt to *cure*, in cases of disease, will be rewarded by rendering their flesh more palatable and their eggs more wholesome.

Most of the diseases to which poultry are

subject are the result of errors of diet or management, and should have been prevented or may be removed by the use of appropriate remedies and adoption of a suitable regimen. When an individual is attacked, it should be forthwith removed to prevent the contamination of the remainder of the flock. Nature, who proves a guardian of fowls in health, will nurse them in their weakness, and act as an efficient physician to the sick. We can do no more than co-operate with her; and the aim of all my medical treatment is to follow the indications which nature holds out, and assist in the effort which she constantly makes for restoration of health.

Before treating the maladies of greatest consequence, it is desirable to present a brief view of so much of the anatomical structure of fowls as will be necessary to the comprehension of disease and its management.

The digestive function in poultry is partly mechanical and partly chemical. It differs widely from some quadrupeds who feed on similar food. Fowls swallow the grain whole, and it is digested in the stomach. From this fact, the opinion has been derived of the necessity of giving stones and gravel to fowls, in order to enable them to grind the food which they take. But this is an error; for, though there are many advantages derived from furnishing them gravel, it is by no means necessary to a perfect and regular digestion.

The digestive organs of fowls consists of the gullet and crop, the gizzard, stomach, liver and intestines. The gullet, or *æso-phagus*, runs down the neck towards the right side, swelling out in front of the chest, into a membraneous bag, called the crop or craw.

The crop is somewhat analogous to the paunch in the ox or sheep. It receives the gullet into its upper part, and proceeds downwards about the middle of the bag, in such a manner that the crop is in some measure aside from the regular communication between the upper and lower opening of the gullet. Its office is to receive the food when first swallowed, and to macerate it, and dissolve it by means of a liquor, which is separated by the glands, which may be observed covering its surface.

The food, after passing the crop, goes through the remaining part of the gullet into a cavity, shaped like a funnel of smaller dimensions. This is the second stomach, which is furnished with a large number of glands, which are called gastric glands; they are placed near each other and are hollow. Their office is to secrete a solvent or digestive fluid, and to discharge it through a small opening into the cavity. When this fluid has diluted and digested the food sufficiently, it is prepared to pass into the gizzard.

The gizzard is the last stomach, and is composed of a body of very fine and dense mus-

cles, lined with a thick, grisly membrane. Towards the cavity of the stomach, this lining forms folds and depressions, which on the opposite surfaces are adapted, or fit, to each other. The gizzard is comparatively small and narrow, and has its outlet near its entrance. It is calculated, in every respect, for producing very powerful trituration, or grinding and is adapted to answer the purposes which are subserved by grinding teeth in other animals. On account of its hard gristly substance, possesses little sensibilities. The outlet of the gizzard discharges the digested food in the form of paste, having a grayish color, into the chyle-gut, which is the first of the intestines.

The liver prepares bile from the blood conducted to it by the veins, and by means of a duct, carries the bile from the gall-bladder into the chyle-gut, in a downward direction, to be mixed with the digested food. This peculiarity is different from other animals. Another fluid, brought from the pancreas to the chyle-gut, completes the apparatus for digestion.

The food now proceeds on to the small intestines.

Their surface is lined with the mouths of numerous absorbents, which perpetually open to take up the aliment prepared in the stomach. The refuse is passed to the rectum, to be discharged from the body.

Fowls are also furnished with kidneys, for removing superfluous fluid from the blood. The kidneys lie in a hollow beside the backbone, and the urine is carried from there in a bluish-colored canal into the rectum. Fowls have no bladder, and it is a criterion of health when their droppings are moist.

A TALK ON HOG AND POULTRY CHOLERA.

In 1857 I began to seriously study poultry cholera. I began the study expecting in time to unravel the mystery. I laid out my work for years ahead, but I was to avoid what others said or done, as I would be sure to make their mistakes. Mine was to be a practical exploration, not theoretical. My object was to find the cause, then the cure. Up to 1868 I had become thorough in the anatomy, habits, etc., and felt sure I knew what caused the disease. To test my theory, I made some experiments, published at that time.

I took a fowl, apparently well, scratched her under the wing so as to show blood. I cut another's head off, about dead with cholera. With a broken broom-straw I saturated the wound of the well one with the blood of the diseased one. The third day she died with every symptom of cholera. For another I mixed the droppings of a sick hen and fed a well one; in two days she died. (I experimented on hogs at the same time with same

results). I found that I could give it to rats and rabbits but not to sheep, ducks or geese. I found by using an imaginary small amount, that poultry would get well; a little more than this produced lingering death—a full drop they would live about three days—that by employing it in several places, I could kill a well hen in about twenty-four hours.

I then became fully convinced that I knew the real cause, and to the present time I have no reason to doubt it. I cure it—in its incipient stage—and prevent it on this theory, and in the end scientific men will agree to it.

We all know that measles are a contagious disease, so is small-pox, yellow fever, etc; we fully understand that each disease has germs of its own. If you are exposed to measles, you will not take small-pox, and vice versa. Now to make this plain to an ordinary farmer, I will put it in easy language. Each of these diseases have a germ—they are vegetable, too—no spontaneous growth, you know, of its own. A person inhaling them—they float in the atmosphere, as millions of others do—they are not visible to the eye, even if assisted with an ordinary microscope—they pass to the blood and then through their transformation, producing the type of disease of which they are the forerunner.

Poultry cholera is caused by a species of these microscopic germs, and they multiply and transform themselves until the blood, the

flesh and excrements are full of them. The smallest imaginable amount taken into the system will produce the disease to a certain extent, and poultry have the ability, while in health, to resist the disease for a long time. I used to have them linger a long time, but finally get well, then I have noticed that those that lingered a long time would take it the second time and die in a very short time. Like the gape-worm, the most contagious form of cholera comes from the droppings of those afflicted with the disease; when the flesh decays it seems to destroy the germ, but their droppings, when mixed with earth, seem never to lose it. It matters not how hard they freeze, how dry they get, how far they float in water, or how far they are transported on your boots, or in an old coop, just as soon as they are swallowed by a fowl and obtain the needed amount of moisture and heat, they appear to waken up and are as deadly as they were ten years before. By the aid of notes I had kept of the effects of different medicines on poultry, within two years, I could keep my flock from taking the disease.

In two years more I learned how to destroy the germs, so I could stop the spread of the disease at once.

In 1878 I cured them over and over, while in the incipient stage, remember; and in 1879 I copyrighted the recipe, and it has been suc-

cessful with me *always*, and with thousands that have bought and used it. There is no use of multiplying words about it, I know as long as there are poultry to have cholera this recipe, if used as directed, will prevent their taking it by destroying the germs, in the system or on the ground, in the water, or where ever found. It has been tested too long to admit of any doubts whatever on this subject.

HOG CHOLERA.

For a long time I thought that hog and poultry cholera were closely related, but I never could give a hog cholera from the blood of a diseased chicken, neither could I give a chicken cholera from the blood of a diseased hog. You can inoculate the blood of diseased hogs or poultry into a wild rabbit and it dies with every symptom of hog cholera. After close investigation and numerous experiments I succeeded in curing several hogs that had the plainly marked symptoms of cholera, and still I hold the opinion that the two diseases are very closely related; in fact, I know they are. Of course it is caused by one of these microscopic germs, and they occupy near the same time and mode of transformation, producing death in about the same average time; are contagious in the same way; the germs when exposed to freezing or heat retaining their vitality the same,

and I know the same remedy cures in one as well as in the other; excepting their diet and care are different, then the two diseases go hand in hand. If you have one the other is sure to follow soon. But it is a different germ, but one carries so much similarity to the other that they must be of the same family; public opinion must believe so too, as it will persist in calling them both "cholera."

After repeated tests—all successful, too—I copyrighted my "Hog and Poultry Cholera Recipe." But now, mark you, that these recipes do not depend upon medicine alone. I know quite a number of persons get them and expect to give their hogs or poultry a dose as though it were "pills," and this to effect a cure.

These recipes will cover the ground of destroying the germs of the disease, using the very best diet to sustain the strength of the system and eradicate the evil.

INDIGESTION.

Indigestion is common with fowls, and deserves attention according to the causes that produce it. A sudden change of food often produces *crop sickness*. The fowl suddenly loses flesh becoming light and weak; it is often produced in the young by feeding too wet or sloppy feed. Such symptoms are removed by dry feed as a general thing. Some-

times a severe fit of indigestion sets in, which threatens serious consequences, especially if long continued. Find the cause (in the feed generally), and remove it.

CROP BOUND.

CAUSES.—The most usual cause is that the fowl has swallowed something that it can not digest, such as a piece of bone, stone or shell, which obstructs the natural passage and leaves the stomach empty, causing hunger.

SYMPTOMS.—Continued hardness of the crop, with a disinclination to eat.

REMEDY.—Before you feed in the morning, if their crops are swelled or full, this must have immediate attention. Often they can be relieved by compelling them to fly or run, have them fly up on something, then down, etc. Sometimes relief is afforded by giving a tea-spoonful of castor-oil, and kneading so as to commingle with contents of the crop, feeding bread soaked in warm fresh milk, etc. Should there be no improvement, remove a few feathers along the side of the crop, take a real sharp knife and cut a slit large enough, and clean the crop of every thing in it. When done, sew together with a few stitches, but be *sure* and sew the sack of the crop together, and *then* the outside covering or skin of the bird. After sewing stick a few downy feathers on the blood, give no water for twenty-

four hours after, then feed on bread soaked in milk sparingly the first three days, and it will soon recover.

COSTIVENESS.

This disorder will be apparent by observing their unsuccessful attempts to relieve themselves. It frequently comes from feeding dry feed too long, without access to green vegetables. Indeed, it is almost sure to happen unless some substitute, as potatoes, turnips, etc., are used. The want of a sufficient supply of pure water will produce the disease, on account of that peculiar structure which has already been explained, by which fowls are unable to void their urine except in connection with the fœces of solid food, and through the same channel. Right here is the first organ that becomes deranged, that finally produces cholera

REMEDY.—Soaked bread, with warm, skimmed milk, is a mild and usually sufficient remedy. All kinds of green vegetables are better. Supply plenty of animal food (meat or grease). Castor-oil relieves the most obstinate cases.

DIARRHEA.

The causes are dampness, undue acidity in the bowels, or the presence of irritating matter there.

The SYMPTOMS are lassitude and emaciation, and in very severe cases, the voiding of calcareous matter, white streaked with yellow, resembling the yolk of a stale egg, and sticks to the feathers near the vent, finally becomes acrid, from the presence of ammonia, and causes inflammation, which speedily extends to the intestines, causing death.

RÈMEDY.—When caused by a diet of green or soft food, change your feed, and give water sparingly. When it arises from undue acidity mix plenty of charcoal with their soft feed. If an obstinate case add a little chalk.

The following tonic should always be used in all diseases of indigestion, especially so in the last named. It is good for poultry at any time, especially so when they are laying.

CHOLERA AND IRON TONIC.—A quart of strong vinegar, four ounces of pieces of nails or small pieces of iron. Thoroughly shake every day for one week, it is then ready for use. Add two table-spoonfuls to one gallon of drinking water, and one of the No. One of the cholera recipe. Use the tincture of iron alone, if you have not the cholera recipe.

DISEASES OF THE RESPIRATORY ORGANS.

Fowls are so constructed in their respiratory system, that their method of breathing is peculiar. The principal organ used is the

nostril, rather than the mouth. You will observe that their nostrils are comparatively large, and that they have immediate communication with the wind-pipe, which is constructed with a series of firm cartilages, bound together by strong membranes.

The windpipe reaches down to the chest, and is there divided into branches, which become constantly smaller till they seem to be mere holes. These ramifications of the windpipe, with numerous blood-vessels, constitute the substance of the lungs. The spaces between them are occupied with delicate membranes, which unite them, and gives a regular appearance to the mass. The holes in which the branches of the windpipe terminate are apertures into large air-sacs, which communicate with the various parts of the body, and constitute, as it were, an auxiliary lung. The whole mass is encased in a membrane or plura, of great delicacy, and secretes a fluid used in keeping the several parts from adhering.

GAPES.

CAUSES. — Foul water, exposure to wet, damp places to roost; by feeding *sloppy* feed, lacking in nourishment.

This is the most common disorder of poultry, and is most prevalent in hot months or climates. It is not only annoying and troublesome, but amazingly fatal. This disease is

caused by numerous small red worms, near the size of a cambric needle, adhering to the lining of the windpipe. When examined by a large magnifying-glass they appear to be all head, and the head all mouth. From the first sight of them that can be obtained under a lens, they are double, the male and female together, somewhat in the shape of letter Y. The male attaches to the female by means of a strong membraneous sucker, and each of them to the lining of the windpipe with their sucker-shaped mouths. These worms lay eggs in great numbers, which may be seen attached to their bodies. They multiply and enlarge very fast. As soon as the blood-vessels cease to yield sufficient nourishment, the weaker ones lose their hold and begin to move about, causing others to lose their hold, finally quite a ball of them will be formed, dropping down on the chest or lungs, causing death by suffocation. Just where the gape worm comes from, how or when, is quite a "speculative" subject with the poultry fraternity, one on which even fanciers of to-day can not throw much light.

I shall not "speculate," but will tell you what "I know about it." If your hen is lousy (and unless you use precautionary measures, they will be when hatching) and your chicks run with her, in four to nine days they will be gaping. If you take two broods, neither of the hens any lice on them, place one on fresh-

plowed or new land, they will not take the gapes ; place the other one where chicks have used before that had the gapes, and the whole brood will become affected. At weaning time take half of the brood that is clear of the gapes, yet let them use with and where the others do, and they will die with the gapes, while those remaining on entirely fresh land will not have it.

Take a brood and apply my gape preventive, and let them go where they wish, and they will not take the gapes. These tests I have made for years and years. Why does the lousy hen have gaping chicks? Because the parasites enter the nostrils, and pass through transformations that produce the gape-worm by the thousands. Every well-informed farmer fully understands how his horse becomes affected with the bots, which is only an egg deposited by a "fly" on the hair, licked off and swallowed by the horse, and in time transforms itself to the destructive bot. A great many pass with the food, and are voided by the horse, and they in their turn transform themselves to the self-same fly. The eggs and gape worms get mixed with the food of the chick (by sneezing, etc.,) and they in time are voided. Then the chick in sneezing relieves itself of a mass of them. All these are left around where they use, and in time are picked up by others—eagerly, too; and as soon as the opportunity offers of a

nice young tender chick, they lay hold with their death-dealing sucker mouths, and soon compel the chick to gasp for breath.

They do not seem to lose vitality by freezing or heating in the sun. In hot weather they enlarge in the warm earth, if they have a little damp manure about them. Land that has been used over several years and not plowed seems to be a great deal the worst. But my experiments show that by plowing the land deep and turning it clear over (top underneath) that it almost eradicates the plague in the ground, or, if you cultivate potatoes in said land, it destroys the worms left on it.

A lady friend wrote me in January: "I am using an Incubator, so I shall not be annoyed with gaping chicks—will I?" The last of February she writes again: "I hatched one hundred and seven chicks from my two hundred eggs, and as sure as you live five of them were gaping when only six days old, and I know they all came from eggs I bought. Those hatched from eggs of my own fowls did not take them until the first were almost dead. While they were crying around so pitiful I would have given ten dollars for a hen that would have been a mother to them, but I did not have one on the farm that would even cluck. Can you tell me how, or the cause of their having gapes? and why one lot becomes affected, then the other?"

The lady had a "patent mother," and a warm, comfortable room, she arranged a little "run" for them in a large iron stove-pan, a lamp under it, and loose dry dirt several inches deep, etc. The dirt may have been from where gaping chicks had been using; if so, every little worm would be eagerly picked up by the young, which would soon tell on them. Just as soon as they sneeze and begin to dislodge a few of the small worms, other chicks get them, and soon the whole lot is diseased. But I think the following is the true cause: I presume, from the care she gave her poultry, that they were clear of lice. The eggs she bought were taken probably from nests full of nits, which are always ready to adhere to any thing a little warm. When the egg is dropped in the nest they adhere to it, and so remain until the heat of the "incubator" hatches them, and as soon the chick is dry enough, they find a lodgment in the down, and soon begin their destructive warfare. Another inquires, "Are there any other lice or mites that produce gapes besides those found on poultry?" Yes; there is a species of wood-lice found in dry, moldy chip piles, that produce it. Also a species of "Jigger," found under large leaves of different vegetables, that produce it. How can we keep clear of it, then? It is plain to be seen that your poultry must be kept clear of lice, that the places where the young are raised

must be plowed and cultivated, or burned over regularly. That they must not be fed where they roost, or where their droppings commingle with their food. That you must begin in time the use of my gape and lice exterminator, and follow directions to a letter. If this is done you can cure them at first, and always prevent their taking it.

In the gape recipe you will have a *sure preventive*; but you will agree with me, after testing this practice, that it is easier to keep clear of cholera or roup than of gapes. *But if you begin in time and act promptly the first week your trouble is over.* Just as soon as your chicks get age, so the muscular tissues of the windpipe are tough and hard, they can devour all the gape worms they can find, and not be injured in the least.

SYMPTOMS—As the name implies, consists of constant gaping, coughing and sneezing, together with inactivity and loss of appetite.

REMEDY.—Always have my gape preventive ready, and apply as soon as the young are dry enough. If you delay too long, look closely and you will find *mites* on top of their heads, which you must remove. If you use soon enough they will not be there.

PIP,

CAUSES.—Exposure to damp or wet weather.

SYMPTOMS.—Short, quick, spasmodic cough,

resembling a chirp, a stoppage of the nostrils compelling the bird to respire through the mouth. If not checked will result in catarrh or bronchitis, which may be known by a continual *rattling* in the throat when breathing.

REMEDY.—Use washes and remedy prescribed in my roup recipe. It is the first and only remedy and preventive I ever found.

CORYZA OR CATARRH OF THE NOSE.

CAUSED by being exposed to wet weather and chilly winds.

SYMPTOMS.—Frequent sneezing, watering of the eye, with a thin, slimy discharge from the nose. If not attended to at once roup is the inevitable result.

REMEDY.—Treat as for roup.

OBSTRUCTION OF THE NOSTRIL.

When the nostrils are obstructed, disease supervenes. Often produced by laceration or fighting. Canker and ulceration is not unfrequent, and any of the catarrhal affections produces this annoying disorder. The *symptoms* are similar to those attending the gapes—they gape and pant for breath.

REMEDY.—Wash the nostrils in real hot water and suds, to loosen the crust, then re-

move, and apply the gape preventive. When such obstructions arise from catarrh bathe with warm milk, and then apply the gape preventive.

ASTHMA.

This disease is caused by an obstruction of the air-cells, by accumulation of phlegm which interferes with the free exercise of their functions. The fowl labors for breath, because it can not take in the usual quantity of air at an inspiration. The capacity of the lungs is diminished, the lining membrane of the windpipe becomes thickened, and its minute branches are more or less affected.

SYMPTOMS are short breathing, opening of the beak often, heaving and panting of the chest; and in case of a rupture of a blood-vessel (which sometimes happens) a drop of blood appearing on the beak.

REMEDY.—Confirmed asthma is difficult to cure. In its incipient stage it is readily cured or prevented by using my remedy for roup. Sulphur mixed with butter and a small quantity of cayenne pepper may help it.

ROUP.

This term is used very loosely, both in common speaking and among writers on poultry, to characterize disease. It is applied to describe maladies as dissimilar as obstruction

of the rump gland, the gapes and catarrh. It should be confined to a dangerous disorder, with symptoms sufficiently marked so any one can identify it.

It is *caused* mostly by cold and moisture, but very often by improper feeding, want of cleanliness and proper exercise.

It is considered by all poultry men to be one of the most dreaded and contagious diseases of poultry. If you will use the prescribed remedies as *preventives*, it will save you a great deal of unpleasant doctoring and the lives of many birds.

The roup affects fowls of all ages, and is either acute or chronic; sometimes commencing suddenly on exposure, at others gradually, as the consequence of neglected colds, damp weather or lodging. Chronic roup has been known to extend through two years, and the patient recover.

SYMPTOMS.—The most prominent symptoms of roup are difficult and noisy breathing, gaping, terminating in a rattling in the throat. The head swells, and is feverish. The eyes are swollen, and the eye-lids appear livid; the sight decays, and sometimes total blindness ensues. There are discharges from the nostrils and mouth, at first thin and limpid, afterward thick, purulent and fetid. In this stage it somewhat resembles glanders in horses, and becomes very infectious, being communicated by the effluvia arising from the

discharge, as well as by the contamination of the drinking water by the sick bird's beak while drinking. As soon as you see the first symptom of it, remove the bird from its well companions.

REMEDY.—I know of nothing but my roup recipe that will do any good. For years and years I tested every thing I could hear of, all to no purpose. I have no trouble now. I use it as a *preventive*, which is far better than *cure*.

CHOLERA AND ROUP.

Your poultry may show all the foregoing or above symptoms, except they stand, and a thin slimy water runs from their mouth, it does not assume a thick fetid state. This is cholera and roup combined.

YELLOW CHOLERA.—So called from their droppings being yellow; but the disease is crop bound and cholera.

SYMPTOMS.—They are dull and stupid; their crops seem to be always full, their droppings assume a yellow cast; finally their crops are swelled very tight, and contents are hard as a stone.

For *remedy*, see the cholera recipe, under head of yellow cholera.

CONSUMPTION.

CAUSES.—It generally arises in breeding in

and in for too long a period—often caused by a neglected cold ; confined in dark, unhealthy places ; scrofulous tubercles will arise on the lungs, liver and other organizations of the body.

SYMPTOMS.—Are hardly observable in the early stages of the disease. In the more advanced state there is a cough with a wasting away of flesh, and indications of weakness. It is considered hereditary, and birds so diseased should not be bred from.

REMEDY.—Years ago, when I did not know the cause I used to relieve and apparently cure a great many by giving them a teaspoonful of cod-liver oil twice a day. In the advanced stages I consider it incurable.

DISEASES OF THE CIRCULATION.

The heart in fowls, as in man and quadrupeds, consists of two ventricles for throwing the blood into the arteries—one to be distributed to the lungs, and the other through the rest of the body, and two auricles for receiving the returned blood. The blood itself is composed of a yellowish substance called serum, and a red colored mass, or crassamentum.

The blood of fowls is liable to several diseases, the chief being fever, inflammation and rheumatism.

The most decided fever to which fowls are

subject, occurs at the period of hatching. At this time the animal heat is so increased that it is perceptible to the touch.

INFLAMMATION, the most serious, is of the eyes. Small abscesses are formed on the cornea, and filled with a white-colored pus. In an aggravated form the whole of the eye becomes inflamed, the eye-lids swell to a great extent, and a matter, like the white of an egg, accumulates beneath the swelling. This disease sometimes results in blindness, and often fatal. It is caused by the vapors arising from close confinement and bad ventilation.

TREATMENT AND REMEDY.—Like other cases of inflammatory attacks, relief is to be sought in a suitable temperature. Use the remedy as prescribed for roup.

RHEUMATISM may be known by stiffness of the joints and limbs, and manifest pain in the attempt to move about, which is apt to render their gait unsteady or limping.

REMEDY.—Warmth and shelter, with a cooling and opening diet, and a free use of the cholera and iron tonic, for all diseases of the circulation.

BLACK ROT.

CAUSES.—Generally by lack of exercise, continued sameness of food, indigestion, want of green food, etc.

SYMPTOMS.—Comb turns black, swelling of the feet and legs and gradual emaciation.

REMEDY.—Give warm, nourishing food, a raw egg every other day, and use the cholera and iron tonic freely.

SWELLING OF THE HEAD.

CAUSES.—This malady is caused by musty food, putrid water, or a general disturbance of digestive organs.

SYMPTOMS.—They mope about, their heads swell with fever, etc.

REMEDY.—I have been successful with a dessert-spoonful of citrate of magnesia, with ten drops of nitre, added to half a pint of drinking water.

APOPLEXY, VERTIGO AND EPILEPSY.

CAUSES.—Undue flow of blood to the head, generally caused by over-feeding.

SYMPTOMS.—Running around in a circle, often fluttering about, often without any apparent control of the muscular action.

REMEDY.—Often by holding the head under a small running stream of cold water will arrest the disease; if so, place the bird by itself in a rather dark place, feed sparingly on soft nourishing food a few days. If the cold water does no good, take a sharp knife or lancet and bleed from the large veins under

the wing ; cut lengthwise of the vein. Also give an aperient or a tablespoonful of castor-oil to a large fowl, smaller ones in proportion.

HERNIA, OR PROTUSION OF THE EGG PASSAGE.

CAUSES.—It is caused by the exertions of the hen to expel an unusually large egg, or in old fowls the general relaxation of the system.

SYMPTOMS.—Protrusion of the laying gut of the hen, which is forced out to such an extent, after laying, that it oftentimes does not recede.

REMEDY.—Place the hen on a diet of non-egg producing food, such as boiled rice and potatoes ; give daily a pill composed of two grains of calomel, one quarter of a grain of tartar emetic, and one grain of opium.

SOFT SHELL EGGS.

CAUSE.—Overfeeding, and the lack of the proper material for hens to eat, so as to form the shell.

SYMPTOMS.—More or less inflammation of the egg passage, and the egg under the perch or in the nest.

REMEDY.—If caused by inflammation of the egg passage, give a feed or two of barley

meal containing one grain of calomel, and half a grain of tartar emetic.

If lack of shell material, furnish ground bone, crushed oyster shells, roasted broken bones, etc.

ABORTION.

CAUSES.—Sudden fright, by a dog or any other animal.

SYMPTOMS.—Dropping of a soft or perfect egg suddenly, and afterwards moping about as if not well.

REMEDY.—Leave by herself and supply soft food mixed with ground bone or oyster shells ; add a little carbonate of soda in the drinking water, say five drops to half a pint of water.

LEG WEAKNESS.

CAUSES.—Do not confound this disease with the one previously described. It often arises from in and in breeding, but it is usually caused by too high feeding, which increases the weight of the body out of proportion to the muscular strength of the limbs. It most frequently occurs with the large breeds ; Brahmas, Cochins, Plymouth Rocks, etc.

SYMPTOMS.—Squatting around on their hocks after standing for a short time, as if tired ; in bad cases they are unable to stand or walk.

REMEDY.—I have always cured by dipping their legs in cool water, and feeding plenty of “shells or bone meal” in their feed, a little tallow or fresh meat, and a free use of the *Iron tonic*.

SCALY LEG OR ELEPHANTIASIS.

CAUSE.—By a midge or parasite working under the scales of a fowl's legs.

SYMPTOMS.—The appearance of a whitish scurf forming on the skin of the legs and toes; if neglected it becomes hard and warty in appearance.

REMEDY.—Wash the legs in strong soap and water; when dry, apply my Lice Exterminator—it is infallible.

MOULTING.

CAUSES.—Though it is not a disease, it is the most critical period of the year for old fowls. There is a greater drain upon the system of the fowl during its change of feathers than at any other time. The life-giving process of nature have to be sustained and an entire new “suit” of feathers yet to be grown.

SYMPTOMS of bad moulting, are a wasting away, inactivity, standing round with its feathers “fluffed,” and shivering with cold.

REMEDY.—Keep the fowl in good warm quarters, out of the wet and cold; feed plenty

of good nourishing feed and a teaspoonful, daily, of ground flax-seed mixed with its feed. Use the iron tonic freely.

BAD FLEDGING.

CAUSES.—This trouble occurs in chicks; it is similar to moulting in fowls, and is occasioned by the same causes, has nearly the same symptoms, and alleviated by the same remedies.

CHICKEN POX.

CAUSES.—Unfavorable conditions of the atmosphere; mostly occurs in cold weather, and is very infectious.

SYMPTOMS.—The head, face, or body is covered with small ulcers containing infectious matter.

REMEDY.—Wash the affected parts with Castile soap and vinegar, diluted one half with water. If this fails, use soap and then a strong solution of chloride of potassium, and feed plenty of charcoal and sulphur in their soft feed.

WHITE COMB, SCURVY OR ITCH.

CAUSES.—Foul coops, decayed food, impure water, overcrowding in ill-ventilated and dark quarters.

SYMPTOMS.—Scurvy appearance of the comb, wattle, head and neck, with gradual loss of feathers from the head and neck.

REMEDY.—Give clean quarters, good ventilation, sound feed, then give near a teaspoonful of castor-oil, after which give, daily, plenty of charcoal and sulphur and the iron tonic.

FROSTED COMB AND WATTLES.

CAUSES.—Exposure to cold freezing weather, more particularly at night. If they are diseased any way, they are very easy frosted.

SYMPTOMS.—Discoloration of the top of the comb and edges of the wattles; they first turn a purplish color, and afterwards become pale and bloodless.

REMEDY.—Hold in ice-cold water awhile, then apply glycerine. Bathe twice a day in tincture of myrrh until well.

VERMIN.

The whole feathered tribe seem to be peculiarly liable to be infested with lice.

Old Mascall says: "They get them in scraping abroad among foul straw, or when they sit in nests not made clean; or in the hen-house, by their droppings lying long there, which corrupt their bodies and breeds lice and fleas."

The presence of lice is not only annoying to the poultry, but materially interferes with their growth, and prevents their fattening and laying.

If a brood of small chicks become lousy, they seldom ever get over it.

REMEDY.—The surest, quickest and best is my gape and lice exterminator. Follow directions and they disappear.

As a *preventive* the best I know of is cleanliness, and to place plenty of slaked lime, dry ashes and sand where they can roll and dust themselves.

INCUBATORS.

I receive thousands of inquiries—Do you use them? What kind is best? Will it pay me to use incubators, and raise several thousand chicks per annum? After they are hatched, could I raise them? Will they have gapes if hatched in an incubator? etc.

I would prefer the discussion of any other subject relating to poultry than "Incubators," from the fact that I never owned one, and I fear I may be prejudiced against them, and may do them wrong. I have always been interested to know their workings, their success and their failures. I have seen a great many different kinds and shapes, all embracing somewhat similar principles. From what I have seen, and from conversation with par-

ties that sell, and others that use them, I think it is useless for an ordinary farmer to buy one. In fact the only use I see for them yet is where parties wish to supply young chicks to cities and towns by the thousands. In this case they can be made to pay a large profit, if manipulated by parties that understand the entire business, and spend money enough to furnish every needed comfort and invention.

To parties that are wealthy and have a disposition to experiment, I know of nothing affording a more interesting field; but for an ordinary farmer or mechanic to undertake it *to make money*, will not do as yet. The time may come, and probably will, when incubators may be so constructed, and the science of rearing the chicks so learned, that they may be generally used.

The design of nature is for the hen to hatch her own eggs, and rear and care for the little ones. In a wild state they are successful, but when confined or crowded, it becomes a science to assist her, and be successful. It is all very nice to furnish a substitute for the hen. If we do, *in a business point of view* we must have something cheaper than the time of the hen, or the substitute is a failure. With this view, so far all the incubators are a failure. Suppose the machine hatches every egg. One whose capacity is one hundred eggs costs about thirty-five dollars; after the chicks are

out they have no mother, and require a great deal of nursing and attention that some one must give. To hatch the same eggs in the natural way requires the time of eight hens, which would cost four dollars; and they will mother, brood and care for them, and lay twelve eggs each by the time the chicks are weaned, and are then worth at least six dollars.

I do not know of an incubator where the proprietor is willing to warrant it. I have been offered several that cost forty-five dollars each for ten dollars, and *warranted good as new*. But the parties offering them would not give any personal warrant as to what it would do, but would say, "it is claimed for it to be thus and so." From correspondence and observation, I think the following proposition covers the ground at present writing:

After paying for the incubator, and time learning to run it, the real chances are that not over one-half the eggs will hatch; one-half of those hatched will be inferior, from the unnatural handling, and die in a few days, and one-half of those left will never reach maturity, from various causes.

If you do buy an incubator, get the best made—will be the cheapest in the long run. I know of many parties that have "bought instructions" how to make cheap ones, but all agree in the end "it would have been better and cheaper to have bought a good

one already to start at first." Take it all in all, if you follow instructions given in this book as to sitting hens, and follow instructions in feeding and caring for chicks, you have a cheaper and more convenient *incubator* and *mother* than you can buy. Now this is the business view of it. But if you want to *experiment*, by all means get one—the very best you can—and try, and keep trying; finally you may learn how to be successful, and in turn learn others.

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